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**Shop Different: Consumers' Motivations for Unplanned Purchases**

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**Shop Different: Consumers' Motivations for Unplanned Purchases**

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**Dissertation**

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

**Doctor of Philosophy**

**The University of Texas at Austin**

**May 2016**

## **Dedication**

To Caroline, Hannah, Mom, and Dad, I love y'all!

## **Acknowledgements**

Wayne, thank you for the opportunity to follow my passion. I am extremely proud to consider you my academic mentor and it is a joy to learn from and work with you.

Jeff, thank you for your guidance over many miles and years. Your sage advice has been invaluable in navigating a path to pursue my research.

Raj, thank you for your support from day one in Austin. Your teachings have elevated my intelligence and happiness.

Mary and Susan, thank you for sharing your enthusiasm for discovery and science with me. Participating in your labs has brought many bright people and ideas into my life.

I am grateful for everyone who has fostered my curiosity and contributed to my education from Portland to Philadelphia to Austin. Herb, Barbara, Pete, and Wes, your encouragement gave me the confidence to embark on this journey, thank you!

# **Shop Different: Consumers' Motivations for Unplanned Purchases**

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The University of Texas at Austin, 2016

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Despite marketers' interest in consumers' motivations for in-store decision making, past research has treated all unplanned purchases as the same behavior. To address this research gap, this dissertation investigations consumers' motivations for unplanned purchases. The introduction presents the definition and importance of the unplanned purchasing phenomenon before reviewing past research on in-store decision making and the significant remaining research questions.

The first essay distinguishes between consumers' intrinsic (i.e., internal) and extrinsic (i.e., instrumental) motivations for unplanned purchases and introduces a novel theory of sequential choice: in-store motivation balancing. This theory predicts that consumers' motivations for unplanned purchases change over a shopping trip to reflect the balancing of intrinsic and extrinsic purchase motivations. A field study and two online shopping experiments that integrate the in-store path-to-purchase with consumers' motivations provide evidence that consumer motivations are dynamic and impacted by a three-way interaction between the personality trait of buying impulsivity, trip progress, and budget focus. This theory extends the literature on motivation change during sequential choice to the in-store decision making domain. Importantly, the factors that influence purchase motivations address several unanswered questions in the literatures of impulse buying and self-control. Finally, the dynamics of in-store motivation provide

insights for retailers and manufacturers to become more shopper-centric with their in-store merchandising and promotion tactics.

The second essay investigates the moderating effect of consumers' dynamic motivations for unplanned purchases on the effectiveness of in-store marketing. Based on motivation theory and the general fit literature, two field studies and two shopping experiments test the relationship between consumers' intrinsic and extrinsic shopping motivations and three types of point-of-purchase messages (i.e., intrinsic motivation messages, non-price extrinsic motivation messages, and price-based messages). The results demonstrate that retailers frequently employ non-price in-store marketing, that in-store marketing is significantly related to shopping motivations, and that consumers are more likely to make an unplanned purchase from a display with in-store marketing that matches their dynamic shopping motivations. While the effectiveness of price-related retail promotion is well established in past research, this research is the first to investigate the effect of in-store marketing on the likelihood of an incremental unplanned purchase. From a managerial point-of-view, the results provide insights for how retailers and manufacturers can deliver the right message to the right consumer at the right time using personalized in-store marketing tactics such as mobile applications and digital signage.

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## **Introduction to Unplanned Purchasing**

Have you ever walked into a grocery store with the intention of buying a couple items and walked out with a full basket? If so, you are in good company. Unplanned purchasing, or purchases that are decided upon during the process of shopping, account for over 50% of grocery purchases (POPAI 2012). In general, unplanned purchases occur because stimuli encountered during a shopping trip (e.g., point-of purchase advertising, the physical products) leads consumers to make an unexpected purchase (Inman, Winer, and Ferraro 2009). Accordingly, past research has investigated the factors that influence the total amount of unplanned purchasing (e.g., Hui, Inman, Huang, and Suher 2013) and the drivers of an individual unplanned purchase (e.g., Hui, Huang, Suher, and Inman 2013).

Yet, even brief reflection suggests that, like most activities, there are different kinds of motivations that could lead to an unplanned purchase (Deci and Ryan 1985). For example, in-store stimuli may remind shoppers of a forgotten need or stimulate a sudden urge to purchase. The purpose of this dissertation is to advance our understanding of unplanned purchasing by conceptually and empirically distinguishing between shoppers' intrinsic (i.e., internal) and extrinsic (i.e., instrumental) motivations for unplanned purchases. Based on this distinction, two essays investigate the drivers of consumers' motivations for unplanned purchasing and the importance of shopping motivations to the effectiveness of in-store marketing. This introduction reviews the importance of unplanned purchasing, extant research on the topic, and the remaining significant research gaps. A summary of the two essays is at the end of this introduction.

## **WHAT IS UNPLANNED PURCHASING?**

Extant research has defined unplanned purchasing as when “before entering the store the shopper does not recognize the existence of a need, or the need is latent until she is in the store and has been exposed to its stimuli” (Kollat and Willett 1967, pg. 21). In contrast to partially planned purchases where a shopper intends to purchase the product category and decides the brand in-store, unplanned purchases are when neither the category nor the brand is intended to be purchased (Cobb and Hoyer 1986). The planned nature of a purchase is typically determined by comparing consumers’ pre-shopping plans to their actual in-store behavior (e.g., Kollat and Willett 1967; Inman et al. 2009). An alternative method is to solicit shoppers’ self-reports of purchasing intentions at the brand and category level after the purchase is made (e.g., Cobb and Hoyer 1986; Bell, Corsten, and Knox 2011). While there are some methodological concerns with the measurement of unplanned purchasing (e.g., Kollat and Willett 1967), the phenomenon has been frequently studied and validated over decades of industry and academic research (e.g., Inman, Winer, and Ferraro 2009; POPAI 2012; Stern 1962).

As implied by its definition, unplanned purchases are thought to occur because stimuli encountered during a shopping trip (e.g., point-of-purchase advertising; the physical product) lead consumers to believe or recall that they have a need or desire for the product category (Inman et al. 2009). For example, a consumer who encounters a cereal display may experience a sudden and immediate desire to eat cereal, be reminded that the stock at home is almost out, or determine that it is an opportunity to save money. Therefore, factors that increase the amount of in-store stimuli that a shopper is exposed to (e.g., placing the milk at the back of the store; Hui, Inman, et al. 2013) or that enhance a stimulus’s ability to trigger unrecognized wants or forgotten needs will lead to an increase in unplanned purchasing. Unplanned purchases may also arise from shoppers’

internal states, such as affect or hunger. Examples would include a sad shopper who chooses a treat to lift her mood or a hungry shopper whose eyes are bigger than his stomach (or wallet). Yet, even when an internal state spurs an unplanned purchase, shoppers may have encountered stimuli during the shopping process that triggered the unplanned purchasing behavior. Because unplanned purchasing is a unique and frequent consumer phenomenon, both managers and academic researchers have been interested in understanding its antecedents and consequences (Hui, Huang, et al. 2013).

#### **MANAGERIAL AND THEORETICAL SIGNIFICANCE OF UNPLANNED PURCHASING**

From a managerial perspective, investigating the drivers of unplanned purchases is a step towards understanding customers and the customer experience (MSI 2014). In particular, the fragmentation of traditional media (Grewal, Roggeveen, and Nordfält 2014), has made it more important than ever to reconsider the shoppers' path-to-purchase (Shankar et al. 2011). This has led consumer packaged goods firms to dramatically increase the resources they direct towards shopper marketing, which involves marketing activities that influence a consumers during the path-to-purchase (Shankar et al. 2011). And, given that most purchases are unplanned at the category level (Inman et al. 2009), practitioners are keenly interested in understanding the factors that influence unplanned spending. Unplanned purchases are especially important to retailers and manufacturers due to their potential for incremental profits (Gilbride, Inman, and Stilley 2015).

Following its managerial significance, there has been a recent surge in academic research on the factors that influence unplanned purchases and spending (e.g., Bell, Corsten, and Knox 2011; Gilbride et al. 2015; Hui, Huang, et al. 2013; Hui, Inman et al. 2013). From an academic perspective, unplanned purchasing behavior captures the consumer decision process from need awareness to purchase within a shopping event.

This type of fast, low-involvement decision making contrasts with existing models of slower, more calculated decision making and thus necessitates special attention (e.g., Hoyer 1984). The distinct aspects of unplanned purchasing have implications for several aspects of consumer research. For example, researchers interested in impulsive consumer behavior (i.e., spontaneous, spur-of-the-moment choices; Rook and Fisher 1995) have studied unplanned purchasing to investigate the factors that lead people to behave in an impulsive manner (e.g., Vohs and Faber 2007). In addition, since multiple purchase decisions can occur within a single shopping trip, in-store decision making is an ideal setting in which to develop and test theories of sequential decision making (e.g., Gilbride et al. 2015; Hui, Huang, et al. 2013). Finally, unplanned purchasing is an opportunity to evaluate the effectiveness of marketing tactics. Because unplanned purchases represent incremental sales as opposed to brand switching (Cobb and Hoyer 1986), they can indicate whether in-store marketing stimulates new purchases.

The study of unplanned purchasing also has significant consumer welfare implications. While past work has focused on the ways that shoppers can avoid making unplanned purchases (e.g., Inman et al. 2009), unplanned purchasing can also make shoppers happier (Rook and Gardner 1993) and make shopping easier (Stern 1962). The tension between unnecessary or excessive spending and opportunistic or rewarding spending makes unplanned purchasing a rich area for research (e.g., Rook 1987; Vohs and Faber 2007). Furthermore, because unplanned purchasing is a real-world phenomenon and often investigated with field studies and realistic controlled experiments, its consequential nature answers the call for consumer research that is externally relevant (Inman 2012; Pham 2013) and meaningful to several constituents in the interdisciplinary field of consumer behavior such as marketers, psychologists, and statisticians (Dahl et al. 2014).



## WHAT DO WE KNOW ABOUT UNPLANNED PURCHASING?

Based on the definition of unplanned purchasing and its research significance, this section reviews the existing literature on unplanned purchasing and identifies four key research questions that stem from a significant gap in the extant research. The literature review is organized by the types of factors that impact the level of exposure to in-store stimuli and the effect of the in-store stimuli on shoppers' unplanned purchasing behavior (Inman et al. 2009). Figure 1 illustrates five types of factors that influence unplanned purchasing: (1) product characteristics, (2) shopper characteristics, (3) type of shopping trip, (4) in-store shopper activities, and (5) in-store marketing.

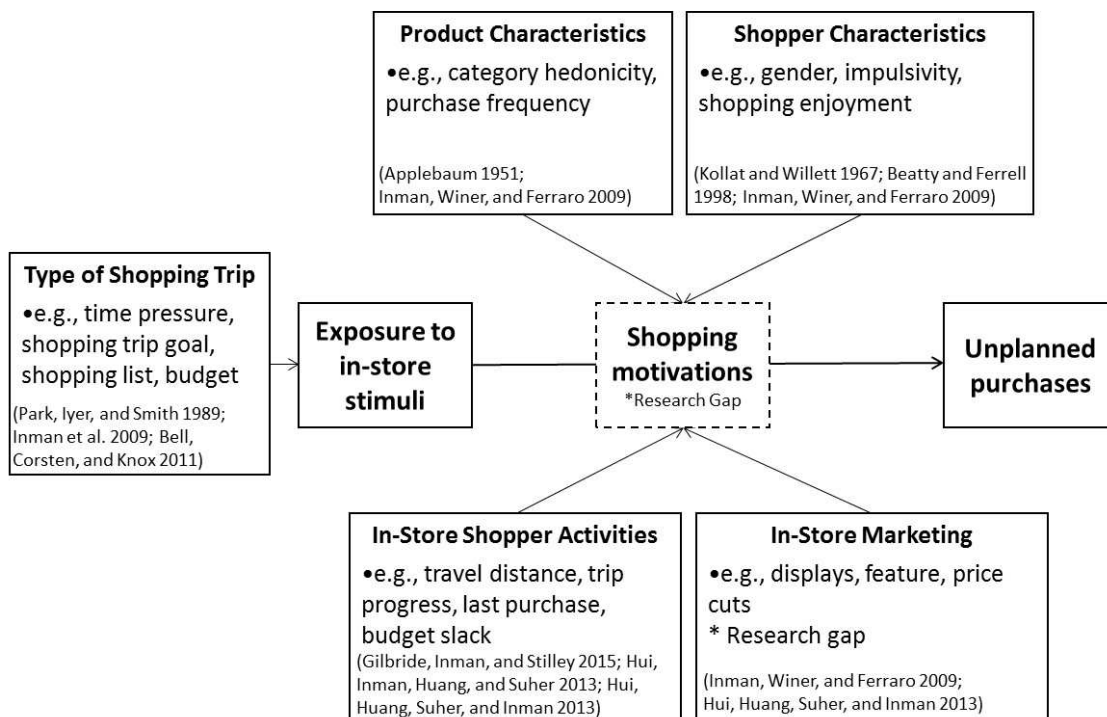


Figure 1: Introduction – Types of Factors that Impact Unplanned Purchases

## **Product Characteristics**

The managerial origins of the study of unplanned purchasing led several early studies to classify certain products into impulse and non-impulse categories. From a retailer's perspective, the rate of unplanned purchasing at the product category level was an important input for merchandising decisions such as what products will stimulate incremental purchases in frequently trafficked areas of the store. For example, Bellenger, Robertson, and Hirschman (1978) found that the rate of unplanned purchasing varies by product category and the dollar amount of purchase. Stern (1962) proposed that unplanned purchasing is more likely for products with low prices, marginal needs, short product life, small size or low weight, and greater ease of storage. He contends that all of these characteristics would impact the likelihood that an individual product is more or less prone to unplanned purchasing.

Taking a step forward, Inman et al. (2009) explored the role of product category characteristics in consumers' likelihood of engaging in unplanned purchases using a large-scale data set of in-store intercept interviews. They find that the likelihood that a given purchase is unplanned is positively associated with the category characteristics of interpurchase cycle and product hedonicity. Products that are purchased less frequently and are more pleasurable to consume are more likely to be purchased in an unplanned manner. Hui, Huang, et al. (2013) and Gilbride et al. (2015) corroborated the finding that more hedonic products are more likely to be purchased in an unplanned manner. In addition, Hui, Huang, et al. (2013) found that unplanned considerations of refrigerated products are more likely to convert to unplanned purchases. This may be related to the perishability of refrigerated products or their placement in highly trafficked areas of the store.

The bottom line is that some product categories are more likely to be chosen as a result of exposure to in-store stimuli than others. The two main reasons are if a product is more hedonic in nature and thus more likely to create a strong, sudden urge to purchase or that the product is needed yet not included in trip plans because it is infrequently purchased or is a perishable item. While some products may be more likely to be purchased in an unplanned manner, the phenomenon of unplanned purchasing applies to any product. Future research needs to address the importance of product characteristics in relation to other factors that influence unplanned purchasing. In addition, the existing research has considered product characteristics as objective and static attributes. It would be valuable to understand whether shoppers' perceptions of products characteristics are more malleable than as discussed in past research. Factors exogenous to the products, such as shoppers' motivations or in-store marketing, could potentially influence the perception of product characteristics and, thus, the likelihood of an unplanned purchase.

### **Shopper Characteristics**

As stated by Rook (1987, pg. 191), "it is people, not products, who experience consuming impulses." Consistent with this idea, several studies have examined the shopper characteristics rather than the product characteristics that impact the extent and likelihood of unplanned purchases. In this context, shopper characteristics refer to stable individual differences between consumers such as demographics and psychographics.

Kollat and Willett (1967) conducted one of the first studies to use a pre-shopping survey to investigate the effect of shopper characteristics on unplanned purchasing. They found that while certain demographics such as household size and gender are associated with unplanned purchasing, these factors do not directly affect unplanned purchasing. Length of marriage was the only demographic variable related to the total amount of

unplanned purchasing. Couples married less than 10 years had the lowest rate of unplanned purchasing. However, subsequent research has found evidence that demographics are significantly related to unplanned purchasing. In particular, the total amount of unplanned purchasing or the likelihood that an individual purchase is unplanned increases for older shoppers (Bellenger et al. 1978; Hui, Huang, et al. 2013), females (Bell et al. 2011; Hui, Huang, et al. 2013; Inman et al. 2009), larger households (Hui, Inman, et al. 2013; Inman et al. 2009), and higher income households (Hui, Inman, et al. 2013).

Despite the consistent effects of demographics, research on psychographics and personality variables has reported mixed effects for the role of shopper characteristics on unplanned purchases. Kollat and Willett (1967) found that many personality variables, including impulsiveness, were not associated with unplanned purchasing. To address the surprising finding that impulsiveness has a nonsignificant relationship with unplanned purchases, Rook and Fisher (1995) further investigated the relationship between buying impulsivity and unplanned purchases and found that the effect of buying impulsiveness is moderated by normative evaluations. Highly impulsive buyers are more likely to make unplanned purchases when they feel it is appropriate to do so. Furthermore, in a study restricted to unplanned purchases that were not reminders of forgotten needs, Beatty and Ferrell (1998) reported that psychographic variables (i.e., shopping enjoyment and impulse buying tendency) are significant drivers of unplanned purchase behavior.

However, recent research continues to find mixed results for the relationship between individual differences and unplanned purchasing. Stilley et al. (2010a) found that impulsive shoppers make more unplanned purchases only when they visit a large portion of a store, whereas Hui, Huang, et al. (2013) found that buying impulsivity is not significantly related to the number of unplanned considerations or the likelihood of

converting an unplanned consideration to purchase. Thus, despite its conceptual importance, it is unclear whether there is a direct relationship between impulsivity and unplanned purchasing. This inconsistency calls into question whether unplanned purchases are always the result of sudden urges to purchases or may also involve more deliberate and instrumental motivations as well.

Other personality traits have also been shown to influence unplanned purchasing. Cobb and Hoyer (1986) reported that people who made unplanned purchases as opposed to partially or fully planned purchases are less prone to shopping and more likely to have simplifying cognitive styles. Zhang, Winterich, and Mittal (2010) related the extent of unplanned purchasing to the psychological construct of “power distance belief” which is the degree to which a culture accepts and expects power disparity. They found that consumers with high as opposed to low power distance belief engage in less unplanned purchasing of hedonic products.

The bottom line is that while shopper characteristics have been widely studied in the literature on unplanned purchasing there is a great deal of uncertainty as to the strength of the effect of demographics and psychographics. On the one hand, since most of the aforementioned research is conducted in real-world settings, some of the variance in shopper characteristics may be attributable to different shopping contexts, methodologies, and shopper samples. On the other hand, the lack of dominant shopper characteristics suggests that all types of shoppers make unplanned purchases and that the phenomenon is not relegated to a particular type of consumer. Future research is needed to investigate the role of shopper characteristics in unplanned purchasing behavior, particularly to explain the mixed results of psychographics in past studies.

## **Type of Shopping Trip**

In addition to stable category and individual characteristics, it is well known that the type of a shopping trip, such as its purpose or amount of pre-trip planning, is a significant determinant of unplanned purchasing behavior. The type of shopping trip can be affected by factors directly under a shopper's control, such as the level of planning (e.g., Bell et al. 2011), or by partially exogenous factors, such as the familiarity with the environment or the amount of time for shopping (e.g., Park, Iyer, and Smith 1989). In contrast to category and shopper characteristics, trip-level factors generally influence unplanned purchasing by increasing or decreasing the amount of in-store stimuli that a shopper is exposed to during a shopping trip rather than impacting a shopper's response to a stimulus given exposure (Inman et al. 2009).

Before going shopping, a consumer's pre-shopping decisions can influence the amount of unplanned purchasing on a given shopping trip. For example, larger shopping trips tend to have greater amounts of unplanned purchases (Block and Morwitz 1999; Kollat and Willett 1967). There are two factors that contribute to this effect. First, shoppers on larger shopping trips may visit a greater area of the store and thus be exposed to more in-store stimuli (Hui, Inman, et al. 2013; Inman et al. 2009). Second, the differences in the level of pre-trip planning between small and large shopping trips affects unplanned purchasing (Nordfält 2009). Shoppers who do less planning or have more abstract shopping goals tend to make more unplanned purchases than shoppers who do more planning or have concrete shopping goals for small and large shopping trips (Bell et al. 2011; Nordfält 2009). In particular, consumers who use shopping lists (e.g., Hui, Huang, et al. 2013; Inman et al. 2009; Kollat and Willett 1967) or pay with cash (Inman et al. 2009) are less likely to make unplanned purchases. Other factors, such as

travel time to store and mode of transportation, are also related to the amount of unplanned purchasing (Bell et al. 2011).

An additional shopping trip level factor under a shopper's control is trip budget. Stilley et al. (2010a) found that grocery shoppers tend to have mental shopping trip budgets that include an itemized portion for planned purchases and budget slack for unanticipated or unplanned purchases. As one would expect, shoppers with larger amounts of budget slack tend to make more unplanned purchases (Hui, Inman, et al. 2013; Stilley et al. 2010b) and are more likely to consider a category in an unplanned manner (Hui, Huang, et al. 2013).

Unplanned purchasing is also affected by trip level factors that shoppers may be unable to directly control. Park et al. (1989) demonstrated that consumers make more unplanned purchases on a shopping trip when they are unfamiliar with a store and when they do not experience time pressure. Whereas, Beatty and Ferrell (1998) replicated the negative effect of time pressure on unplanned spending, there are mixed results for the effect of store familiarity. Consistent with Park et al. (1989), Hui, Huang, et al. (2013) found that store familiarity decreases the likelihood that a consumer considers an unplanned category, whereas Inman et al. (2009) found that greater store familiarity increases the likelihood that a purchase is unplanned as opposed to planned. Competing mechanisms may underlie these contradictory findings. For instance, a shopper who is less familiar with a store may attend to more stimuli because of its novelty, while at the same time less familiarity may also reduce the shopper's ability to rely on the store as a shopping list.

The bottom line is that situational variables within and outside of a shopper's control have an impact on unplanned purchasing behavior. In relation to the other drivers of unplanned purchasing, the impact of shopping trip type may partially explain the

mixed results for the effect of product and shopper characteristics on unplanned purchasing. If the type of shopping trip can vary from one occasion to the next then one would expect to find inconsistencies in the stable product and shopper variables. In contrast to product and shopper characteristics, the shopping trip type variables tend to influence unplanned purchasing by increasing or decreasing exposure to in-store stimuli. This may be done by increasing shoppers' in-store travel distance (e.g., Hui, Inman, et al. 2013) or by constraining their focus to a limited set of premeditated purchases. Finally, because the majority of research on the type of shopping trip has focused on shoppers' organization of their trips, such as the level of planning and the mental budget, future research should investigate how shopping trips also differ in the intrinsic and extrinsic benefits that a consumer receives from shopping. For example, Babin, Darden, and Griffin (1994) proposed that consumers have distinct work and fun motivations for shopping.

### **In-Store Shopper Activities**

The most recent research on in-store decision making has found that dynamic in-store consumer activities have a significant influence on unplanned spending. While product characteristics, shopper characteristics, and shopping trip type factors are stable within a shopping trip, in-store shopper activities are the factors that can change within a shopping trip. The surge in research on in-store shopper activities has been abetted by technology that provides researchers with the ability to track shoppers' in-store behavior such as RFID path tracking (e.g., Hui, Inman, et al. 2013), handheld scanners (e.g., Gilbride et al. 2015; Stilley et al. 2010b), and head-mounted video cameras (e.g., Hui, Huang, et al. 2013). Using these technologies, most research on in-store shopper



activities has investigated the effect of overall trip progress and the characteristics of a previous purchase on unplanned purchasing behavior.

Trip progress, or the time spent shopping, by definition increases throughout a shopping trip. Hui, Huang, et al. (2013) found that unplanned product considerations, as opposed to planned considerations, are more likely to occur later in a shopping trip. One reason this may occur is that the typical path through the store takes shoppers through sections of frequently planned categories, like produce, before they encounter frequently unplanned purchases categories in the center-of-store aisles. Gilbride et al. (2015) attempted to address this issue by including store zone variables and they still found that purchases are more likely to be unplanned later in a shopping trip. However, as shoppers make unplanned purchases, their budget slack also decreases and unplanned purchases are less likely to occur when budget slack is depleted (Gilbride et al. 2015; Hui, Huang, et al. 2013). Therefore, unplanned purchases should be most likely to occur during the window after a shopper has made some trip progress and still has remaining budget slack.

To further understand the effect of trip progress on whether a given purchase is unplanned or not, Gilbride et al. (2015) examined how trip progress interacts with the size of a shopper's trip. They found that shoppers with smaller trip budgets tend to exhibit behavior consistent with a self-regulation model (i.e., an unplanned purchase decreases the probability of a subsequent unplanned vs. planned purchase), but this effect reverses later in the trip. In contrast, shoppers with medium-sized trip budgets tend to exhibit behavior consistent with a cuing theory model (i.e., an unplanned purchase increases the probability of a subsequent unplanned vs. planned purchase), and this effect increases as the trip continues.

The other dynamic in-store factor that has been investigated in past research is the outcome of the previous product consideration. Hui, Huang, et al. (2013) observed a

“reverse momentum” effect where the outcome of the last unplanned consideration is negatively associated with the outcome of the current unplanned consideration. In other words, if a shopper walks away from the previous unplanned consideration without making a purchase, she is more likely to purchase during the current unplanned consideration. Gilbride et al. (2015) investigated the effect of whether the previous purchase was a hedonic or utilitarian product. They found that when the previous purchase was planned and a utilitarian product, the next purchase was more likely to be unplanned. However, when the previous selection was unplanned there was no effect of the previous purchase.

The bottom line is that unplanned purchasing behavior is not stable within a shopping trip. Consistent with literature on sequential decision making (e.g., Dhar, Huber, and Khan 2007), previous in-store activities can have an impact on current decision making however the specifics of these dynamics are relatively uncertain. Because behavior tracking technology is needed to measure within trip variables, research on the dynamic factors that influence unplanned purchasing. Future work should continue to address the interaction between in-store shopper activities and other shopping variables such as product characteristics, shopper characteristics, and the type of shopping trip.

### **In-Store Marketing**

A predominant goal of in-store marketing, defined as the use of information and communication-related retail marketing instruments within the physical outlets of a retailer (Kumar, Umashankar, and Park 2014), is to stimulate incremental unplanned purchasing. In other words, in-store marketing represents the tactics that a retailer and manufacturer can use to influence unplanned purchasing during the in-store path-to-

purchase. The increasing fragmentation of traditional media, such as television and print advertising, is leading marketers to increase the amount of resources devoted to in-store activities (Lucas 2012). However, research on the effect of in-store marketing on unplanned purchasing is surprisingly limited. Since in-store marketing typically operates at the product or display level (e.g., point-of-purchase messages or digital signage; Roggeveen, Nordfält, and Grewal 2015), it is difficult to observe how these tactics influence unplanned purchasing without tracking in-store behavior.

A few recent studies have investigated the relationship between unplanned purchasing and some forms of price cuts, coupons, circulars, and in-store displays. Based on shopper recall, Inman et al. (2009) found that purchases made from in-store displays were more likely to be unplanned purchases. Hui, Huang, et al. (2013) demonstrated that in-store displays affect unplanned purchasing by increasing the likelihood that a product category is considered in an unplanned manner as opposed to increasing the conversion rate given consideration. Using shopping diaries, Bell et al. (2011) reported that shoppers who recall seeing special offers in the store tend to make more unplanned purchases than shoppers who do not see special offers. They also found that shoppers who read and pay attention to the store circular make more unplanned purchases than those who do not. Hui, Huang, et al. (2013) discovered that promotion in a store's circular advertisement increases the likelihood that an unplanned category is considered although promotion does not influence the likelihood of whether the consideration converts to an unplanned purchase. It is important to note that in-store circulars are frequently coordinated with temporary price cuts so their effect may be partially due to price cuts (Zhang 2006).

With regards to the dynamic effects of consumers' response to in-store marketing, Stilley, Inman, and Wakefield (2010b) examined how the impact of promotions depends on whether a shopper still has in-store slack remaining in her budget. The results suggest

that savings on planned items lead to stockpiling by higher-income shoppers when the savings occur before the in-store slack has been depleted but lead to increased purchase of unplanned items when they occur after in-store slack is depleted. The results also show that promotions on unplanned grocery items generate incremental spending at the basket level, which increases with income but only when the item is purchased after the in-store slack is exceeded. In addition, research has found that purchases made with a coupon are less likely to be unplanned (Block and Morwitz 1999; Inman et al. 2009), although saving money from an unexpected in-store coupon (e.g., electronic shelf coupons) increases unplanned purchasing of “treat” items and products that are cognitively related or in close proximity to the coupon (Heilman, Nakamoto, and Rao 2002).

The bottom line is that marketers can influence unplanned purchasing with in-store marketing; however our understanding of this phenomenon is limited. In particular, while the effectiveness of price promotions and displays or features coordinated with price promotions is well established in the retailing literature (Neslin 2002), it is unclear whether non-economic tactics (e.g., point-of-purchase signage or digital displays) can effectively stimulate incremental sales through unplanned purchasing. In addition, if future work is to contribute to our understanding of in-store marketing, studies need to investigate the likelihood of an unplanned purchase from a given display unconditional on a purchase being made. Much of the previous research has studied whether a purchase is planned or not given that it has already been made (i.e., conditional on purchase; Inman et al. 2009; Gilbride et al. 2015) or only measured unplanned purchasing at the aggregate trip level (e.g., Bell et al. 2011; Kollat and Willett 1967; Hui, Inman, et al. 2013).

## **WHAT DON'T WE KNOW ABOUT UNPLANNED PURCHASING**

Despite the significant academic and managerial interest in the phenomenon of unplanned purchasing, empirical research has been limited to a unitary conception of unplanned purchasing. That is, the dependent variable in almost all research on unplanned purchasing is the total amount of unplanned purchasing in a shopping trip or whether an individual purchase is unplanned or not. However, from a consumers' point-of-view, there are many mechanisms and reasons that people may make unplanned purchases. Thus, a fundamental limitation to the extant research on unplanned purchasing is the lack of understanding of the causes and consequences of shoppers' different motivations for unplanned purchases. As a result, there are four key questions for future research on unplanned purchasing which are the focus of this dissertation. First, how can managers and researchers distinguish between different types of unplanned purchases? Second, what individual differences and trip-level factors impact consumers' motivations for the different types of unplanned purchases? Third, do motivations for unplanned purchases change within a shopping trip? And, fourth, do consumers' shopping motivations moderate the effectiveness of in-store marketing tactics at stimulating incremental unplanned purchases? Answering these questions will lead to a better conceptual understanding of the unplanned purchasing phenomena, address conflicts in past research, and assist marketers with their efforts to generate incremental sales using in-store marketing.

### **Research Question #1: Shoppers' Motivations for Unplanned Purchases**

From a motivational perspective, it is well known that people can have different intrinsic and extrinsic motivations for engaging in the same activity (Deci and Ryan 1985). For instance, it is easy to imagine several reasons that a box of cereal would be purchased in an unplanned manner, including because it looked good, to try something

new, because it was on sale, or to replenish limited stock at home. However, past research has treated all unplanned purchases as identically motivated behaviors. Thus, research is needed to distinguish between different types of unplanned purchases. For example, Hui, Huang, et al. (2013, pg. 461) suggest that: “Parsing out the drivers of forgotten needs (in-store recognition) versus the drivers of unplanned wants (impulse purchases) remains an important question for future research.” Thus, differentiating between intrinsic (i.e., internal) and extrinsic (i.e., instrumental) motivations for unplanned purchases can help us to better understand the factors that influence unplanned purchasing.

### **Research Question #2: Factors that Impact Motivations for Unplanned Purchasing**

Given that consumers can have different motivations for unplanned purchases, understanding the factors that influence these motivations can shed light on the process of in-store decision making. For example, consumers go shopping for different reasons and the purpose of a shopping trip may be reflected in the consumers’ motivations for unplanned purchases, especially at the beginning of their shopping trips. In addition, one reason that past research has reported inconsistent results for the effect of shopper characteristics on unplanned purchasing is that individual differences may be conceptually related to intrinsic motivations but not extrinsic motivations for unplanned purchases (Beatty and Ferrell 1998). For example, this may explain why past research has sometimes found that buying impulsivity is a non-significant predictor of unplanned purchasing (e.g., Kollat and Willett 1967) or that its effect is moderated by other factors (e.g., Rook and Fisher 1995). Therefore, understanding the factors that impact motivations for unplanned purchases can shed light on inconsistent findings in past research.

### **Research Question #3: The Dynamics of Motivations for Unplanned Purchasing**

The literature on sequential choice (e.g., Dhar et al. 2007), suggests that consumers' unplanned purchasing behavior may change within a shopping trip. While recent research has examined some dynamic factors that influence the likelihood that a purchase is planned or not within a shopping trip (Gilbride et al. 2015) and whether a given unplanned consideration converts to purchase (Hui, Huang, et al. 2013), the dynamics of motivations for unplanned purchases have not been investigated. This is an important research gap because past research has failed to find patterns in consumers' choice of hedonic as opposed to utilitarian products while shopping (Dhar and Simonson 1999; Hui, Bradlow, and Fader 2009), leaving the dynamics of in-store decision making uncertain. However, recent research has proposed that people have a fundamental tendency to balance their motivations for action during sequential activity (Inzlicht, Schmeichel, and Macrae 2014; Laran and Janiszewski 2011). Thus, it is possible that consumers' motivations change dynamically within a shopping trip even though their affinity for certain product types does not follow the same pattern. Practically, an understanding of the pattern of shoppers' motivations for unplanned purchases can help retailers develop in-store marketing tactics to reach the right shopper with the right offer at the right time (Danaher et al. 2015).

### **Research Question #4: Non-Price In-Store Marketing**

Insights into the underlying motivations for unplanned purchasing are central to decisions regarding the use of in-store marketing to stimulate incremental purchases. If shoppers have different motivations for unplanned purchasing then marketing tactics may be more effective when correctly matched with the factors that influence motivations. The literature on the effect of in-store marketing has predominantly studied the effect of price-based tactics. For instance, Hui, Huang, et al. (2013) found that feature advertising,

which is highly coordinated with price cuts, increases the likelihood of consideration of an unplanned categories yet has a nonsignificant effect on the likelihood that an unplanned consideration is converted to purchase. Inman et al. (2009) found that coupons decrease the likelihood that a purchase is unplanned as opposed to planned whereas displays increase the likelihood that a purchase is unplanned. These results highlight the importance of in-store marketing for unplanned purchases although little is known about the use of non-price in-store marketing to stimulate incremental unplanned purchases.

Non-price in-store marketing (e.g., point-of-purchase messages or digital signage) is an important area for future research for two reasons. First, shoppers' purchase decisions are not always motivated by price (e.g., Hoyer 1984). In particular, if shoppers have non-price motivations for unplanned purchases then price-based in-store marketing may be an inefficient means of stimulating incremental unplanned purchases. Second, while price-based in-store marketing can effectively increase sales, there are significant drawbacks to using price cuts. They can reduce retailers' margins (van Heerde, Leeflang, and Wittink 2004), damage a manufacturer's brand equity (Erdem, Keane, and Sun 2008), and increase consumer price sensitivity (Mela, Gupta, and Legmann 1997). Non-price in-store marketing may be an opportunity to increase unplanned purchasing without these negative consequences. Thus, it is critical to understand the factors that moderate the effectiveness of different types of non-price in-store marketing.

## **SUMMARY AND CONTRIBUTION OF DISSERTATION**

Based on past research, two critical questions regarding consumers' motivations for unplanned purchases are: (1) how to distinguish between different types of unplanned purchases and (2) how do motivations to make unplanned purchases differ between and within shoppers? To address these questions, Essay 1 uses motivation theory to



distinguish between unplanned purchases made for intrinsic (i.e., internal) motivations as opposed to extrinsic (i.e., instrumental) motivations for unplanned purchases (Deci and Ryan 1985). Building on this distinction, the essay develops hypotheses for the within trip and individual difference factors that affect shoppers' motivations for unplanned purchases. The predictions are tested with a field study and two controlled shopping experiments. The results provide evidence that the relationship between time spent shopping and buying impulsivity leads to systematic patterns in shoppers' motivations to make unplanned purchases. As long as shoppers have ample shopping budgets, high impulsivity consumers are more likely to have intrinsic motivations at the beginning of a shopping trip whereas low impulsivity consumers are more likely to have extrinsic motivations early in a shopping trip. However, as time spent shopping increases, the pattern of motivations between high and low impulsivity consumers reverses. In contrast, consumers with strict monetary constraints or who are focused on their shopping budgets do not exhibit changes in motivations for unplanned purchases during a shopping trip.

There are four major contributions of the conceptual and empirical support for the motivational framework developed in Essay 1. First, the distinction between intrinsic and extrinsic motivations for unplanned purchases addresses the lack of research on shoppers' motivations to make unplanned purchases. Importantly, this distinction allows researchers to investigate the differences between types of unplanned purchases and the factors that lead to different motivations for purchase. Second, a novel theory of "in-store motivation balancing" explains how motivations for unplanned purchases change within a shopping trip in a pattern consistent with a motivation balancing phenomenon (Inzlicht et al. 2014). The effect of in-store shopper activities, such as trip progress, is an emerging area of research for unplanned purchasing and the results suggest that in-store decision

making is influenced by a motivation balancing mechanism as opposed to a resource depletion mechanism (e.g., Vohs and Faber 2007).

Third, the moderating effect of the personality trait of buying impulsivity on the effect of trip progress addresses mixed results in past literature on the effect of shopper characteristics on unplanned purchasing (e.g., Hui, Huang, et al. 2013; Kollat and Willett 1967). The results provide evidence that buying impulsivity is uniquely linked to intrinsic motivations as opposed to extrinsic motivations for unplanned purchases. Fourth, the mitigating effect of budget focus contributes a novel real-world boundary condition of the motivation balancing phenomenon. This sheds light on when consumers' motivations change within a shopping trip. In summary, Essay 1 advances our understanding of unplanned purchasing by distinguishing between intrinsic and extrinsic motivations for unplanned purchases and providing evidence for the in-store shopper activities and consumer characteristics that influence shoppers' motivations.

Essay 2 investigates whether the dynamics of consumers' intrinsic and extrinsic motivations for unplanned purchases impact the effectiveness of in-store marketing. In particular, the essay considers if and how non-price point-of-purchase messages can be an effective means of stimulating unplanned purchasing. Building on the motivational framework developed in Essay 1, the hypotheses propose that messages that highlight intrinsic motivations for unplanned purchases can be just as effective as extrinsic messages when correctly targeted to in-store shopper activities and shopper characteristics. Since there is paucity of research on the use of in-store marketing, especially non-price messages, the essay first reports two field surveys to demonstrate that non-price in-store marketing is commonly used by grocery retailers and significantly related to consumers' non-price motivations for unplanned purchases. Then two shopping experiments that manipulate point-of-purchase messages at the displays of unplanned

product categories provide evidence that the purpose of a shopping trip and buying impulsivity impact consumers' dynamic motivations and thus the effectiveness of in-store marketing. In particular, intrinsic motivation messages can be more effective at stimulating unplanned purchases as compared to extrinsic motivation messages when consumers are predicted to have intrinsic motivations.

There are three major contributions of Essay 2. First, the essay distinguishes between different types of non-economic point-of-purchase messages and demonstrates the relationship between intrinsic messages and intrinsic motivations for purchase. Whereas past research has found that non-economic tactics, like displays and increasing shelf space, are useful because they increase attention to a product (e.g., Chandon et al. 2009; Dreze, Hoch, and Purk 1995), this research suggests that point-of-purchase messages can influence consumers' appraisals of products and displays during evaluative stages of decision making (Hui, Huang, et al. 2013; Russo and Leclerc 1994). Second, building on the relationship between messages and motivations, two shopping experiments provide evidence that consumers' response to in-store marketing is moderated by their dynamic shopping motivations. Whereas past research has generally treated shopping motivation as a static trip-level factors (e.g., Bell et al. 2011), the results suggest that consumers' shopping motivations change within a shopping trip. This provides behavioral evidence for the in-store motivation balancing phenomenon.

Third, while there has been increasing interest in the drivers of unplanned purchases, this research is the first to investigate the effect of non-price in-store marketing on unplanned purchasing unconditional on a purchase being made. The results show that non-price point-of-purchase messages can outperform price-based messages. The effectiveness of non-price in-store marketing is especially important to retailers and manufacturers because, if used correctly, non-price promotional tactics may generate

incremental sales without the drawbacks of price-based marketing. In particular, the emergence of mobile and e-commerce technology makes it feasible to deliver the right message to the right shopper at the right time (Danaher et al. 2015). Thus, the results of the shopping experiments suggest that non-price in-store marketing has the potential to be a rare win-win-win for retailers, manufacturers, and consumers.

To conclude, the fundamental assertion of this research is that understanding shoppers' heterogeneous motivations for unplanned purchases is critical to advancing academics and practitioners' knowledge of the factors that impact unplanned purchasing. Essay 1 distinguishes between shoppers' intrinsic and extrinsic motivations to make unplanned purchases. This distinction reveals novel patterns in the dynamics of shoppers' motivations for unplanned purchasing. Essay 2 investigates the moderating effect of shoppers' dynamic motivations for unplanned purchasing on the effectiveness of in-store marketing. The findings demonstrate how non-price in-store marketing can increase the likelihood of an unplanned purchase when targeted to the consumers' dynamic shopping motivations.

# **Essay 1 – In-Store Motivation Balancing: The Dynamics of Consumers’ Reasons for Unplanned Purchases**

## **INTRODUCTION**

Two shoppers, Jamie and Alex, walk into a grocery store. Upon entering, a vibrant fruit display catches Jamie’s attention and she chooses fresh berries that look good to her. The rest of her shopping trip is used to gather planned items, with one exception. She notices eggs in the back of the store and selects a dozen to replenish her stock at home. In contrast, Alex passes the fruit display without glancing up from his shopping list. Out of the corner of his eyes he sees a bright yellow sale sign for cereal. He prefers a different brand, but the price is too good to pass up and he takes two boxes. After finding all of the items on his list, he notices a new type of iced coffee at the front of the store and takes one to enjoy on the way home.

Taken together, Jamie and Alex illustrate two critical aspects of unplanned purchasing. First, consumers can have different motivations for unplanned purchases. Both shoppers were motivated to make unplanned purchases for their own personal *wants* (i.e., intrinsic motivations) and for instrumental *needs* (i.e., extrinsic motivations; Deci and Ryan 1985). Second, consumers’ motivations may change during the course of a shopping trip as these motivations occurred at different points in their shopping trips. On the one hand, Jamie acted on an intrinsic motivation when purchasing fresh berries at the beginning of her shopping trip and an extrinsic motivation later in her trip by buying eggs that she needed. On the other hand, Alex acted on an extrinsic motivation to save money early in his shopping trip and an intrinsic motivation for an unplanned treat just before leaving the store. Following this example, the purpose of our research is to investigate the dynamics of consumers’ motivations for unplanned purchases and their implications for our understanding of sequential choice dynamics and in-store decision making.

Surprisingly, extant research has not investigated the differences and dynamics of consumers' motivations for unplanned purchases illustrated in the preceding example. In fact, despite qualitative evidence that unplanned purchases are made for different reasons (e.g., Block and Morwitz 1999; Park, Iyer, and Smith 1989; Stilley, Inman, and Wakefield 2010a), past studies have treated consumers' motivations for unplanned purchases as identical and unrelated (e.g., Bell, Corsten, and Knox 2011; Gilbride, Inman, and Stilley 2015; Hui, Huang, et al. 2013; Inman et al. 2009; Kollat and Willett 1967). The lack of research on consumers' motivations for unplanned purchases is a major gap in the marketing literature because a top research priority is understanding customers and the customer experience (MSI 2014). The phenomenon of unplanned purchasing represents over half of grocery purchases (POPAI 2012) and retailers and manufacturers are keenly interested in understanding the process of in-store decision making (Hui, Huang, et al. 2013). From an academic perspective, determining the factors that influence consumers' motivations during the in-store path-to-purchase addresses inconsistencies in the literature on the influence of personality traits and past decisions on impulsive shopping behaviors. In addition, insight into the motivational process of unplanned purchasing has implications for consumer welfare (e.g., Inman et al. 2009), and, from a managerial perspective, can contribute to marketers' long-standing need for insights into consumers' shopping motivations (e.g., Dichter 1964; Underhill 2009).

Thus, in response to the research gap regarding whether consumers have different motivations for unplanned purchases and whether these motivations change within a shopping trip, this research takes a novel perspective on unplanned purchasing behavior: we distinguish between different types of unplanned purchases and measure consumers' motivations for their unplanned purchases within a shopping trip. In doing so, our research makes four significant contributions to the consumer behavior literature. First,

because the conceptual definition of unplanned purchasing has been criticized as being too vague and encompassing too many different types of behaviors (e.g., Hui, Huang, et al. 2013; Rook 1987; Stern 1962), we propose and justify a conceptual and empirical distinction between unplanned purchases made out of personal interest and liking (i.e., intrinsic motivations) from those that are intended to achieve instrumental, task-related goals (i.e., extrinsic motivations). This distinction is a novel application of motivation theory (Deci and Ryan 1985) and addresses the lack of research on different types of unplanned purchases. In particular, whereas past research has studied the amount of unplanned purchasing overall (e.g., Kollat and Willett 1967) or whether a given purchase is unplanned or not (e.g., Inman et al. 2009), this distinction allows us to investigate the factors that influence *why* an unplanned purchase is made.

Second, to understand the dynamics of consumers' motivations for unplanned purchases, we introduce a novel theory of sequential choice: in-store motivation balancing. Our theory proposes that the likelihood of consumers' opposing intrinsic and extrinsic motivations for unplanned purchases changes within a shopping trip. We predict that shoppers who are highly likely to have intrinsic motivations early in a shopping trip will become more likely to have extrinsic motivations later in a trip, and vice versa. Support for the motivation balancing pattern would provide evidence that the likelihood of consumers' *motivations* for purchase (i.e., intrinsic vs. extrinsic motivations) rather than the type of product chosen (e.g., hedonic vs. utilitarian product) changes within a shopping trip. Importantly, this would explain why past research has found that consumers' do not balance their choices of hedonic versus utilitarian products within a shopping trip (Dhar and Simonson 1999; Hui, Bradlow, and Fader 2009). Thus, while past research has investigated changes in the choices of particular product types, we

propose that the dynamics of consumers' motivations for unplanned purchases cut across category characteristics.

Third, we address a significant contradiction in the literature on the personality trait of buying impulsivity. While most researchers expect highly impulsive consumers to be more likely to make more unplanned purchases and choose more hedonic products (Rook and Fisher 1995), buying impulsivity has been found to have a nonsignificant impact on the incidence of unplanned purchasing (Kollat and Willett 1967; Hui, Huang, et al. 2013) and does not affect the choice between hedonic or utilitarian products (Vohs and Faber 2007). However, by separating intrinsic and extrinsic motivations for purchase, we propose that buying impulsivity moderates whether an unplanned purchase is internally motivated or not (i.e., an impulse purchase; Rook 1987). Thus, our research suggests that buying impulsivity impacts consumers' subjective reasons for action rather than the overall incidence of unplanned purchasing.

Fourth, we propose a novel boundary condition that moderates the motivation balancing phenomenon in real-world decision making. A critical question in the research on sequential decision making is what factors moderate the phenomenon of balancing (Fishbach and Dhar 2005; Inzlicht, Schmeichel, and Macrae 2014). In particular, while past research has investigated moderators of a two-stage consumption episode, our research addresses the conditions under which balancing occurs over a continuous time frame in a real-world activity. In particular, we predict that budget focus (i.e., the saliency of monetary resources) moderates the motivation balancing phenomenon: consumers with smaller budgets are less likely to experience changes in motivations within a shopping trip. In particular, we test whether the underlying mechanism of this boundary condition is consumers' psychological focus on budgeting as opposed to facing real monetary constraints (e.g., Stilley et al. 2010a). As a result, we learn the conditions



under which consumers' motivations change within a shopping trip and develop insight into the impact of consumer budgeting tactics on in-store decision making (e.g., van Ittersum et al. 2013).

From a managerial perspective, the dynamics of consumers' motivations for unplanned purchases are extremely important to the burgeoning industries of shopper marketing (Shankar et al. 2011) and mobile marketing (Luo et al. 2014). Our research suggests how in-store merchandising should seek a balance between promoting personal wants and instrumental needs. Furthermore, the advent of e-commerce, mobile marketing, and customizable digital displays has increased marketers' interest in matching in-store marketing to consumers' motivations for purchase (Grewal, Roggeveen, and Nordfält 2014). For example, marketers can use our framework to deliver personalized messages at the point-of-purchase with mobile shopping applications (Hui, Inman, et al. 2013). From a consumer perspective, the finding that shoppers shift between making unplanned purchases for intrinsic and extrinsic motivations is a sharp contrast from research that stigmatizes all unplanned purchasing as an uncontrollable break-down in self-control (e.g., Hoch and Loewenstein 1991; Vohs and Faber 2007). Instead, it seems that consumers naturally manage the balance between internal impulses and functional choices for unplanned behaviors within a shopping trip. For example, consumers who wish to avoid impulse purchasing at the end of a shopping trip may engage in a benign indulgence when they begin shopping to satisfy their initial intrinsic motivations.

The rest of the paper is organized as follows. We first describe the distinction between intrinsic and extrinsic motivations for unplanned purchases. Then, we introduce the in-store motivation balancing phenomenon and develop hypotheses for the factors that influence the differences and dynamics of consumers' motivations for unplanned

purchases. Our motivational framework is tested in a field study with video-tracking technology, two controlled shopping experiments, and multiple follow-up studies. Finally, we conclude with a discussion of the theoretical contributions and managerial implications of the distinction between intrinsic and extrinsic motivations for unplanned purchases and the in-store motivation balancing phenomenon.

### **INTRINSIC AND EXTRINSIC PURCHASE MOTIVATIONS**

A long tradition in psychology suggests that there is a dichotomy (or at least a continuum) of motivations: from intrinsic motivation (also called “internal” motivation) to extrinsic motivation (also called “instrumental” motivation) (Deci and Ryan 1985). Intrinsic motivations are internal, experiential, and affective; an activity is appreciated for its own sake, without further regard to its practical purposes. Extrinsic motivations are primarily instrumental, functional, and cognitive; an activity is a means to a separable end. Past research has shown that this distinction applies to product choice (Chandon, Wansink, and Laurent 2000; Moore 2015; Van Trijp, Hoyer, and Inman 1996); a product can be selected for personal interest and enjoyment (i.e., intrinsic motivation) or because it is instrumental towards the accomplishment of a separable goal (i.e., extrinsic motivation). In the context of in-store decision making, past research has documented several reasons for purchase which can be classified as intrinsic or extrinsic motivations (Block and Morwitz 1999; Hoyer 1984; Park, Iyer and Smith 1989; Stilley et al. 2010a). Table 1 provides examples of common reasons for unplanned purchases and their relationship with intrinsic and extrinsic motivations.

<b>Intrinsic Motivation</b>	<b>Extrinsic Motivation</b>
Unplanned Wants <i>“I want it”</i> <i>“impulse purchase”</i>	Reminder of Product Needs <i>“needed the product”</i> <i>“reminded in-store”</i>
Hedonic Reason <i>“I like it”</i> <i>“looked good”</i>	Price or Sale Based <i>“on sale”</i> <i>“on display”</i>
Curiosity or Physiology <i>“try something new”</i> <i>“hungry / thirsty”</i>	Instrumental Purchase <i>“for someone else”</i> <i>“information on the label”</i>

Table 1: Essay 1 – Examples of Motivations for Purchase

While some past research has used the intrinsic/extrinsic distinction interchangeably with a hedonic/utilitarian distinction (Chandon et al. 2000; Kaltcheva and Weitz 2006; Moore 2015), we specifically use the intrinsic/extrinsic terminology to emphasize consumers’ subjective reasons for purchase as opposed to stable product characteristics (e.g., hedonic/utilitarian products; Dhar and Wertenbroch 2000). This is important because any product, regardless of its level of hedonicity (or other attributes), can be chosen for intrinsic or extrinsic motivations (Choi and Fishbach 2011; Woolley and Fishbach 2016). For example, imagine a consumer makes an unplanned purchase of cake. She may say that the cake looked good or she wanted it, both examples of intrinsic motivation. Or, she may have remembered that it was needed for a party or bought it because of a low price. These latter reasons, forgotten needs and saving money, are extrinsic motivations because they make progress towards goals that are separable from the consumers’ interest in the cake itself (i.e., external recognition and monetary rewards; Ryan and Deci 2000). Thus, even though intrinsic and extrinsic motivations lead to the same behavior (i.e., unplanned purchase of cake), the underlying causes and marketing implications are different (Van Trijp et al. 1996)

Finally, it is important to note that we distinguish between reasons for individual purchases rather than shopping motivations at the trip level (e.g., Arnold and Reynolds 2003; Babin et al. 1994; Childers et al. 2001; Kaltcheva and Weitz 2006). The body of research on trip-level motivations concludes that consumers go to stores to satisfy both intrinsic (i.e., hedonic, fun) and extrinsic (i.e., utilitarian, work) motivations. While the literature on trip-level motivations maps onto the distinction between intrinsic and extrinsic motivations for individual purchases, past research has not investigated whether motivations for unplanned purchases change within a shopping trip. This is particularly important because there is evidence that consumers have both intrinsic and extrinsic shopping motivations at the trip-level (e.g., Babin et al. 1994), however, research is needed to understand the process by which consumers pursue opposing motivations within a single shopping trip.

#### **IN-STORE MOTIVATION BALANCING**

Recent findings in the motivation literature provide evidence that consumers' motivations change over the course of temporally contiguous events. In particular, the process model of cognitive control in sequential activities (e.g., Inzlicht et al. 2014; Kool and Botvinick 2014) predicts that people seek an optimal balance between engaging in cognitive labor to pursue "have-to" activities versus preferring cognitive leisure in the pursuit of "want-to" activities. That is, in everyday activities, people naturally shift between engagement in "have-to" or "ought-to" tasks, which are carried out through a sense of obligation and duty, and "want-to" tasks, which are fun, personally enjoyable, and meaningful (Ryan and Deci 2000). This motivated switching between labor and leisure is thought to be evolutionarily adaptive because it allows an organism not only to mentally engage in a task to attain external rewards, but also to disengage from it and

pursue activities that may be even more gratifying (e.g., Drolet 2002; Laran and Janiszewski 2011).

In the context of in-store decision making, the evidence that people pursue opposing intrinsic and extrinsic motivations over sequential choice activities suggests that consumers' motivations for unplanned purchases will change within a shopping trip. We refer to this phenomenon as "in-store motivation balancing." In particular, the following hypotheses propose two patterns of motivation change within a shopping trip: (1) an increase in extrinsic motivations for shoppers with a high likelihood of intrinsic motivations at the beginning of a shopping trip, and, the opposite pattern, (2) an increase in intrinsic motivations for shoppers with a high likelihood of extrinsic motivations at the beginning of a shopping trip. Thus, the change in the predicted likelihood of motivations for unplanned purchases, from intrinsic to extrinsic motivation or from extrinsic to intrinsic motivation, depends on consumers' initial motivations. Importantly, in contrast to theories of two-stage decision making in past consumer research ("goal balancing" and "licensing" theories; Dhar and Simonson 1999; Khan and Dhar 2006), the in-store motivation balancing theory proposes that consumers' *motivations* for product choices, as opposed to the *type* of product chosen (e.g., a hedonic versus utilitarian product), change over the course of a shopping trip.

As illustrated in Figure 1, the next section investigates the factors that influence the dynamics of consumers' motivations for unplanned purchases. First, we propose that the personality trait of buying impulsivity influences consumers' initial motivations for unplanned purchases. Second, based on past research on in-store decision making we expect consumers' motivations to change as the time spent shopping (i.e., trip progress) increases within a trip. Finally, because consumers with tight budgetary constraints are more focused on managing their resources than balancing their motivations (Dhar and

Simonson 1999), we predict that greater attention to a budget constraint (i.e., budget focus) will mitigate the motivation balancing phenomenon.

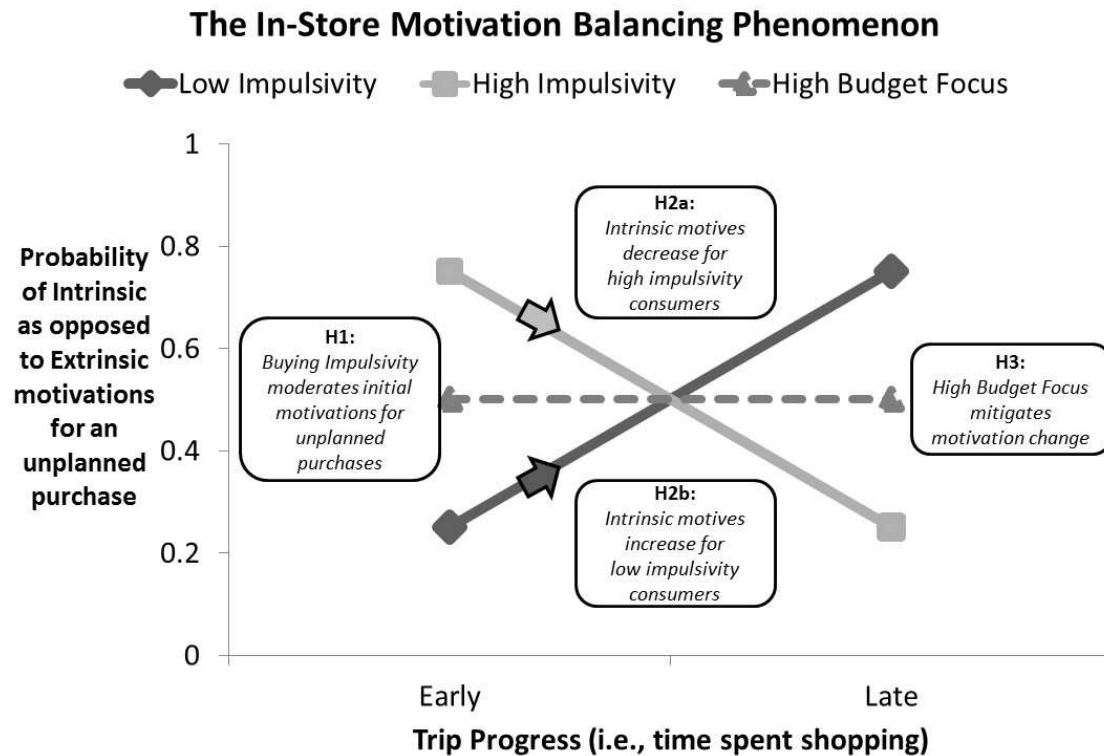


Figure 2: Essay 1 – Illustration of In-Store Motivation Balancing

### Buying Impulsivity Predicts Initial Motivations for Unplanned Purchases

Past research suggests that motivations for unplanned purchases should be related to the construct of buying impulsivity (Rook and Fisher 1995). Buying impulsivity is defined as a consumers' tendency to buy spontaneously, unreflectively, immediately, and kinetically (Rook and Fisher 1995). High impulsivity consumers, as opposed to low impulsivity consumers, are more likely to act on a whim and to respond affirmatively and immediately to their buying impulses (Rook 1987). This leads high impulsivity

consumers to be more receptive to sudden, unexpected buying ideas (i.e., impulse purchases; Amos, Holmes, and Keneson 2014).

With regard to purchase motivations, because the internally motivated nature of impulse purchases exemplifies intrinsic motivation (Deci and Ryan 1985), high impulsivity consumers should be highly likely to experience and act on intrinsic motivations early in a shopping trip, especially when making unplanned purchases. In contrast, low impulsivity consumers prefer to plan ahead and are goal oriented (Rook and Fisher 1995). As a result, their reasons for unplanned purchases are more likely to reflect extrinsic motivations, like saving money and forgotten needs, which are consistent with their prudent nature. Thus, while buying impulsivity has surprisingly had a nonsignificant effect on the overall incidence of unplanned purchasing (Kollat and Willett 1967; Hui, Huang, et al. 2013) and the choice of hedonic versus utilitarian products (Vohs and Faber 2007), we expect buying impulsivity to impact the likelihood that an unplanned purchase made early in a shopping trip is intrinsically as opposed to extrinsically motivated.

**H1:** Early in a shopping trip, high impulsivity as opposed to low impulsivity consumers will be more likely to have intrinsic motivations than extrinsic motivations for unplanned purchases.

### **Trip Progress Changes Motivations for Unplanned Purchases**

If buying impulsivity leads to initial differences in consumer motivations, then recent research on sequential decision making suggests that consumers' reasons for unplanned purchases will change in opposite directions within a shopping trip. For example, Drolet (2002) found that people seek variation in their use of decision rules in sequential choice for the innate value of change itself. Consumers who initially choose a low-price (high-quality) option were more likely to choose the high-quality (low-price)

option in the subsequent choice. In the self-control literature, Laran and Janiszewski (2011) found that portraying the same activity as either intrinsically or extrinsically motivated has an impact on self-control in a subsequent activity. In one experiment, after completing a taste test activity that was either intrinsically (i.e., portrayed as internally motivated) or extrinsically motivated (i.e., portrayed as an instrumental task), the participants who performed the first task for intrinsic motivations performed better in a self-control task than participants who were initially extrinsically motivated. Similarly, Choi and Fishbach (2011) found that portraying a product choice as intrinsically as opposed to extrinsically motivated also increases subsequent self-control. In summary, while not directly related to shopping motivations, these studies provide evidence that consumers have a tendency to shift between intrinsic and extrinsic motivations within a sequence of temporally-related activities.

In the context of in-store decision making, past research has measured the sequence of activities using the construct of trip progress: the cumulative amount of time or number of purchases in a shopping trip (e.g., Gilbride et al. 2015; Hui et al. 2009). Thus, as trip progress increases, the in-store motivation balancing phenomenon should manifest in two opposite patterns. On the one hand, consumers who are disposed to be intrinsically motivated (i.e., high impulsivity consumers) will experience an increase in the likelihood of extrinsic motivations for unplanned purchases to balance their high initial likelihood to act on internal urges to purchase. On the other hand, consumers disposed to be extrinsically motivated (i.e., low impulsivity consumers) should exhibit the opposite pattern: the likelihood of intrinsic motivations for unplanned purchases will increase during a shopping trip. For example, after shopping primarily for forgotten needs and price-cuts, a low impulsivity consumer will become more likely to act on an internal urge to purchase. Thus, we predict that the interaction between buying impulsivity and



trip progress will impact the likelihood of intrinsic as opposed to extrinsic motivations for an unplanned purchase.

**H2:** Buying impulsivity will moderate the effect of trip progress on the likelihood of intrinsic as opposed to extrinsic motivations for unplanned purchases:

(a) High impulsivity consumers will experience a decrease in the likelihood of intrinsic as opposed to extrinsic motivations for unplanned purchases as the time spent shopping (i.e., trip progress) increases, whereas

(b) Low impulsivity consumers will experience an increase in the likelihood of intrinsic as opposed to extrinsic motivations for unplanned purchases as the time spent shopping (i.e., trip progress) increases.

### **Budget Focus Moderates Motivation Balancing**

We further consider a boundary condition for the motivation balancing phenomenon. In particular, the sequential decision making literature suggests that increasing the salience of monetary resources (i.e., budget focus) mitigates sequential choice effects. Dhar and Simonson (1999) find that goal balancing is attenuated when consumers tradeoff a goal and a monetary constraint in a consumption episode. When constrained by monetary resources, consumers prefer to reach a peak experience, or achieve the greatest level on a single goal, in one consumption episode rather than achieve a balance between episodes. Similarly, Dhar et al. (2007) find that the shopping momentum effect (i.e., an increase in subsequent purchase likelihood after an initial purchase) is attenuated when the price of an initial choice is salient or people use different forms of payment. This suggests that the effect of past choices does not always

carry over to subsequent decisions. Taken together, Dhar and Simonson (1999) and Dhar et al. (2007) predict that focusing people's attention on monetary resources will be disruptive to choice dynamics.

In the context of in-store decision making, consumers are more focused on their budgets when they have smaller implicit budgets, which are based on previous expenditures at a store, or smaller explicit budgets, which are based on shoppers' finite resources (Stilley et al. 2010a; Van Ittersum, Pennings, and Wansink 2010). For example, assuming a similar trip purpose, a shopper with only \$25 to spend on a shopping trip will be relatively more conscious of her budget than a shopper with a budget of \$50. Another source of greater budget focus is the explicit monitoring of a shopping budget. Regardless of the absolute size of a budget, consumers may explicitly track their spending during a shopping trip on their own or with technological assistance, such as with a mobile shopping application (Hui, Inman, et al. 2013) or a smart shopping cart (van Ittersum et al. 2013). In summary, because monetary constraints direct consumers' attention to their limited resources rather than motivations for purchase (Dhar and Simonson 1999; Dhar et al. 2007), we expect greater budget focus (e.g., low trip budget or explicit budget tracking) to mitigate the motivation balancing phenomenon. This suggests a significant three-way interaction between buying impulsivity, trip progress, and budget focus:

**H3:** When consumers are focused on a monetary budget, the effect of trip progress on consumers' motivations for unplanned purchases will be mitigated for both high and low impulsivity consumers.

## **Study Overview**

We conducted three main studies to test our hypotheses. Study 1 tested our motivational framework (see Figure 1) in a real grocery shopping setting. Studies 2 and 3

employed online shopping experiments to address issues of internal validity and explore the causal effect of the budget focus boundary condition. The main test of theoretical interest in all studies is the effect of the three-way interaction between buying impulsivity, trip progress, and budget focus on the likelihood of intrinsic as opposed to extrinsic motivations for unplanned purchases. The in-store motivation balancing phenomenon will be supported if consumers' motivations for unplanned purchases change in opposite directions depending on buying impulsivity. However, we expect a focus on budgetary constraints to be a boundary condition for motivation balancing.

### **STUDY 1: IN-STORE VIDEO TRACKING**

The goal of Study 1 is to provide evidence for the in-store motivation balancing phenomenon in a real world grocery shopping setting. We conducted a field study using video tracking equipment and an entrance and exit survey to integrate consumers' purchase intentions (Kollat and Willett 1967) with their in-store shopping behavior (Hui, Huang, et al. 2013) and motivations for unplanned purchases (e.g., Van Trijp et al. 1996). This novel data set is necessary to investigate the dynamics of consumers' motivations for unplanned purchases.

#### **Study Design and Data Preparation**

A total of 250 grocery shoppers were intercepted as they entered a medium-sized grocery store. Participants first completed an entrance survey that measured their trip budget and planned purchases. Trip budget was assessed using an open-ended question (Stilley et al. 2010a). Planned purchases were recorded by asking each participant to check all the products he or she planned to purchase during the current shopping trip from a list of 96 product categories (e.g., milk, cleaning supplies). This information was compared to the participants' purchase receipts to identify the unplanned purchases (e.g.,

Inman et al. 2009). Participants then donned a head-mounted video camera that recorded their entire field-of-vision and began shopping. After checking out, participants completed an exit survey. The exit survey measured buying impulsivity (Rook and Fisher 1995) and participants' reasons for up to five of their unplanned purchases. Finally, participants were given a \$5 gift card and dismissed. Thirteen participants had corrupted video data due to technical problems with the video tracking system and were thus excluded from the data set, leaving 237 shoppers for our analysis.

Overall, participants made 2,306 purchases, of which 837 were unplanned purchases. Our dataset is comprised of the 277 unplanned purchases for which participants reported a reason for purchase. Because of time constraints in the field, participants were not required to report motivations for all of their unplanned purchases. We found that the unplanned purchases for which participants provided motivations were on average more hedonic than unplanned purchases for which participants did not provide motivations ( $t(1, 836), p < .01$ ). The possibility of a selection bias leads us to caution in the interpretation of absolute summary statistics from this dataset, however the tests of our hypotheses are based on relative differences between shoppers and within shopping trips. As a follow-up, the discussion of this study reports an additional field study that recorded motivations for all unplanned purchases with a different methodology.

The dependent variable for analysis was participants' self-reported motivations for each unplanned purchase. These motivations were solicited with the open-ended question "Why did you make this purchase?" Each answer was coded for the presence of intrinsic motivation (0=No; 1=Yes) and extrinsic motivation (0=No; 1=Yes) by two trained research assistants unaware of our hypotheses. Following the motivation literature (Ryan and Deci 2000), a purchase was coded as intrinsically motivated if the reason for

purchase was that the product “looked good” or the participant “wanted it.” A purchase was coded as extrinsically motivated if it was made for a price-related motivation, “remembering” or “needing” the product, or purchasing for someone else. Agreement between coders was 90% for intrinsic motivation and 91% for extrinsic motivations. All discrepancies were resolved through discussion.

After coding motivations, we found that participants were about three times more likely to report extrinsic motivations as opposed to intrinsic motivations for unplanned purchases ( $M_{extrinsic} = 0.78$ ;  $M_{intrinsic} = 0.28$ ). Only sixteen purchases were coded as both intrinsically and extrinsically motivated. This is consistent with motivation theory: intrinsic and extrinsic motivations generally oppose each other although they are not mutually exclusive (Deci and Ryan 1985). In this rare case, the purchase was treated as intrinsically motivated because some types of extrinsic motivation can be self-motivated (e.g., integrated motivations; Ryan and Deci 2000).

Trip progress was operationalized as the duration in seconds of the shopping trip when a purchase occurs; it was recorded from the video data by trained coders. Trip budget is the dollar value of a participant’s mental budget for the shopping trip. The analyses also include a covariate for category hedonicity (taken from Wakefield and Inman 2003) to partially control for differences between product categories. Because hedonic goods are positively associated with intrinsic motivations (Chandon et al. 2000), we expected category hedonicity to have a positive main effect on the likelihood of intrinsic motivations as opposed to extrinsic motivations.

## **Results**

To test our motivational framework, we regressed purchase motivation on buying impulsivity, trip progress, trip budget, category hedonicity, and all interactions between

buying impulsivity, trip progress, and trip budget. The model predicted the likelihood that an unplanned purchase was intrinsically as opposed to extrinsically motivated (i.e., intrinsic motivation = 1; extrinsic motivation = 0) using a logistic regression with the participant treated as a repeated variable. All independent variables were mean-centered. Appendix A includes summary statistics and Appendix B includes full model results.

First, high impulsivity participants were more likely than low impulsivity participants to have intrinsic motivations ( $\beta = 0.44$ ,  $Z(266) = 2.23$ ,  $p = .03$ ) and the main effect of trip progress was nonsignificant ( $\beta = -0.02$ ,  $Z(266) = -1.29$ ,  $p = .20$ ). Second, the impulsivity and trip progress interaction was moderately significant ( $\beta = -0.05$ ,  $Z(266) = -1.85$ ,  $p = .06$ ). Third, consistent with our hypotheses, the three-way interaction (see Figure 3) between impulsivity, trip progress, and trip budget was significant ( $\beta = -0.002$ ,  $Z(266) = -2.27$ ,  $p = .02$ ). Spotlight tests at one standard deviation above and below the mean of trip budget provide evidence that the two-way interaction between impulsivity and trip progress was stronger for participants with larger budgets ( $\beta = -0.12$ ,  $Z(266) = -2.65$ ,  $p = .01$ ) than smaller budgets ( $\beta = 0.02$ ,  $Z(266) = 0.55$ ,  $p = .58$ ).

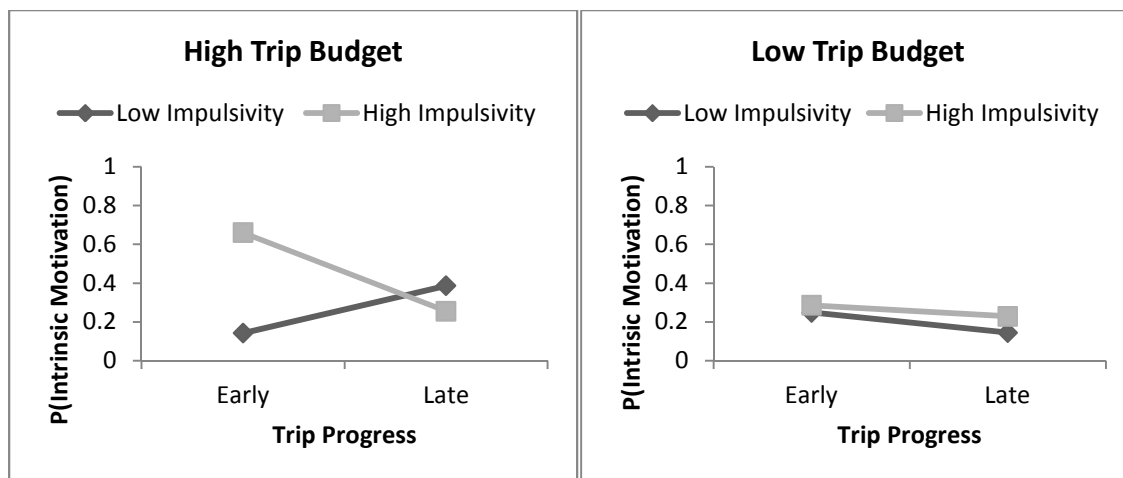


Figure 3: Essay 1, Study 1 – interaction of impulsivity, trip progress, and trip budget

To better understand the changes in participants' motivations within a shopping trip, we conducted spotlight analyses within the high budget condition at one standard deviation above and below the mean for buying impulsivity. For participants with large budgets and low impulsivity, there was a moderately significant positive effect of trip progress on the likelihood of intrinsic as opposed to extrinsic motivations for unplanned purchases ( $\beta = 0.08$ ,  $Z(266) = 1.87$ ,  $p = .06$ ). In contrast, for participants with large budgets and high impulsivity, there was a significant negative effect of trip progress on consumers' motivations ( $\beta = -0.10$ ,  $Z(266) = -2.71$ ,  $p = .01$ ). In summary, when consumers had ample trip budget, high impulsivity consumers become more likely to have extrinsic motivations for unplanned purchases as trip progress increases. On the other hand, low impulsivity consumers experienced an increase in intrinsic motivations for unplanned purchases as trip progress increases.

Finally, we conducted spotlight analyses within the high budget condition at one standard deviation above and below the mean for trip progress. Whereas buying impulsivity had a significant impact on consumers' motivations at the beginning of a shopping trip ( $\beta = 1.68$ ,  $Z(266) = 2.24$ ,  $p = .03$ ), its impact was nonsignificant later in a shopping trip ( $\beta = -0.40$ ,  $Z(266) = -0.87$ ,  $p = .38$ ). In other words, the balancing mechanism leads the absolute likelihood of intrinsic as opposed to extrinsic motivations for unplanned purchases of high impulsivity and low impulsivity consumers to converge as trip progress increases.

## **Discussion**

Study 1 provides support for the in-store motivation balancing phenomenon in a real-world sequential decision making setting. We found that high impulsivity consumers initially have strong intrinsic motivations that decrease with trip progress and the

opposite pattern for low impulsivity consumers. As expected, trip budget moderates the interaction between impulsivity and trip progress. Consumers with larger budgets are more likely to exhibit motivation balancing, whereas motivations for consumers with small budgets are constant within a trip.

To better understand the source of change in consumer motivations, we considered a few robustness tests with alternative independent variables for trip progress and trip budget (see Appendix C). First, whereas motivations changed over the cumulative level of trip progress, substituting a relative measure of progress (i.e., time in trip at purchase divided by total trip time) did not replicate the same phenomenon suggesting that motivations change over the cumulative passage of time. The next two studies control for overall trip length to address the issue that early and late relative trip progress would have differed for shoppers with different trip lengths. Second, to better understand the boundary condition of the balancing phenomenon, we ran two additional regressions to replace trip budget with budget slack (the difference between total trip budget and expected spending on unplanned purchases; Stilley et al. 2010a) and a pre-shopping measure of trip size (i.e., number of planned categories). The results suggested that the boundary condition of trip budget is related to the size of the shopping trip overall rather than the amount of budget slack. We investigated the mechanism of the boundary condition in the next studies by manipulating trip budget and manipulating budget focus without changing the trip budget.

One potential concern with our motivation measurement methodology is that consumers are unable to accurately report their motivations for unplanned purchases at the conclusion of a shopping trip. To address this concern, we conducted a follow-up study in a different grocery store. An experimenter was positioned inside the store and approached consumers immediately after seeing a completed purchase. In total, 103



consumers agreed to participate, of which 70 had just made an unplanned purchase. The participants were first prompted to describe the reason for their unplanned purchase with an open-ended question. Then, buying impulsivity was measured as participants' agreement with two items: "I often buy things spontaneously" and "I like to rely on my gut feelings." The reasons for purchase were coded for the presence of intrinsic motivations (0/1) by two independent coders (intercoder agreement was 94%). We also recorded the type of product purchased, its location in the store, and the number of items in the participant's cart. The location was discretized into six possible zones corresponding to a counter-clockwise path through the store where larger numbers indicated greater progress along the dominant in-store path. The product of the location of the purchase and the number of items in the cart served as a proxy for trip progress. The interviews were conducted throughout the store to increase variance in the trip progress variable.

Intrinsic motivation (0 = No; 1 = Yes) was regressed on the main effects of and the interaction between buying impulsivity and trip progress. Category hedonicity was also included as a covariate. The main result was a significant interaction between impulsivity and trip progress ( $\beta = -0.39$ ,  $Z(65) = 4.07$ ,  $p = .04$ ). The negative coefficient indicates that high impulsivity as opposed to low impulsivity consumers were more likely to have intrinsic motivations at the beginning of their shopping trips and less likely to have intrinsic motivations at the end of their trips. The main effects of buying impulsivity, trip progress, and category hedonicity were statistically nonsignificant. We report this follow-up field study because it provides additional evidence that the effect of trip progress on motivations for unplanned purchases is moderated by buying impulsivity. Most importantly, it measures motivations immediately after product choice rather than at the end of the shopping trip.

## **STUDY 2: SHOPPING EXPERIMENT WITH MANIPULATED BUDGET**

Study 2 tests our hypotheses in a shopping experiment that offers greater experimental control than the field setting of Study 1. First, we manipulated trip budget to test for its causal effect on consumers' motivations for unplanned purchases. Second, the organization of the categories within the online store was randomized to address the possible confound of category order effects. Third, the length of the shopping trip was controlled to test whether motivations change over a relative rather than absolute measure of trip progress. Fourth, we recorded the reasons for all unplanned purchases in a random order using a cued recall procedure to prevent missing data and post-hoc motivation balancing.

### **Study Design and Data Preparation**

Seventy-five undergraduate students participated in this study for course credit. Participants were given a six item shopping list and a small (\$25) or large budget (\$50). While the small budget was enough to purchase the list items and at least two non-list items, consumers in the large budget had sufficient budget to choose at least one item from every category in the store. Participants viewed one category at a time and were free to navigate between 23 pretested categories with at least three items each (e.g., salsa, paper towels, etc.; see Appendix C for complete details). Thus, the study design exposed all participants to all categories in the store at least once. This feature is meant to replicate the in-store shopping experience of exposure to unplanned items during the procurement of planned purchases (Inman et al. 2009).

After shopping, participants were asked to indicate their motivations for their non-list purchases. Then, an exit survey measured buying impulsivity (nine items; Rook and Fisher 1995) and frequency of shopping for groceries (from 1 = never to 7 = frequently). Trip progress was measured as the relative order in which the products were viewed. We

also included in the dataset a measure of category hedonicity (taken from Wakefield and Inman 2003). The study was incentive-aligned by entering participants into a lottery to receive all of their groceries if they stayed under budget while purchasing every item on their shopping list.

Our final data set consisted of 184 non-list purchases made by 70 participants (five participants were excluded from the analysis because they never shop for groceries). We focus on the non-list items because they ostensibly are stimulated by exposure to in-store stimuli like unplanned purchases (Inman et al. 2009). As in Study 1, consumers' intrinsic (0/1) and extrinsic (0/1) motivations for the purchases were coded by two trained research assistants. Coder agreement was 90% for intrinsic motivations and 92% for extrinsic motivations. All disagreements were resolved through discussion.

Overall, participants were about 10% more likely to report intrinsic than extrinsic motivations ( $M_{extrinsic} = 0.45$ ;  $M_{intrinsic} = 0.56$ ). The greater percentage of intrinsic motivations as compared to Study 1 may be a result the change in participants or the change in the shopping environment. However, because our hypotheses focus on relative differences in motivations within a shopping trip and between consumers, understanding the absolute differences in the likelihood of intrinsic versus extrinsic motivations is an important direction for future research.

## **Results**

Following Study 1, purchase motivation was regressed on buying impulsivity, trip progress, trip budget, category hedonicity, and all interactions between buying impulsivity, trip progress, and trip budget. The model predicted the likelihood that a purchase was intrinsically as opposed to extrinsically motivated (i.e., intrinsic motivation = 1; extrinsic motivation = 0) using a logistic regression with the participant treated as a

repeated variable. Buying impulsivity, trip progress, and category hedonicity were mean-centered. Since high versus low trip budget was randomly assigned it was contrast coded (i.e., high budget = 1; low budget = -1). Appendix A includes summary statistics and Appendix B includes full model results.

First, the main effects of buying impulsivity and trip progress were nonsignificant ( $\beta = 0.01$ ,  $Z(174) = 0.05$ ,  $p = .96$ ;  $\beta = 0.62$ ,  $Z(174) = 1.16$ ,  $p = .25$ ). Second, the interaction between impulsivity and trip progress was significant ( $\beta = -1.88$ ,  $Z(174) = -2.57$ ,  $p = .01$ ), indicating that the pattern of motivations within a shopping trip depends on buying impulsivity. Third, as predicted, the three-way interaction between impulsivity, trip progress, and trip budget was significant ( $\beta = -1.85$ ,  $Z(174) = -2.51$ ,  $p = .01$ ). Spotlight tests for trip budget at one standard deviation above and below the mean provide evidence that the interaction between impulsivity and trip progress is stronger when participants were assigned a large budget ( $\beta = -3.73$ ,  $Z(174) = -4.02$ ,  $p < .0001$ ) as opposed to a small budget ( $\beta = -0.03$ ,  $Z(174) = -0.03$ ,  $p = .98$ ). Figure 4 illustrates the two-way interactions between buying impulsivity and trip progress for high and low budget consumers.

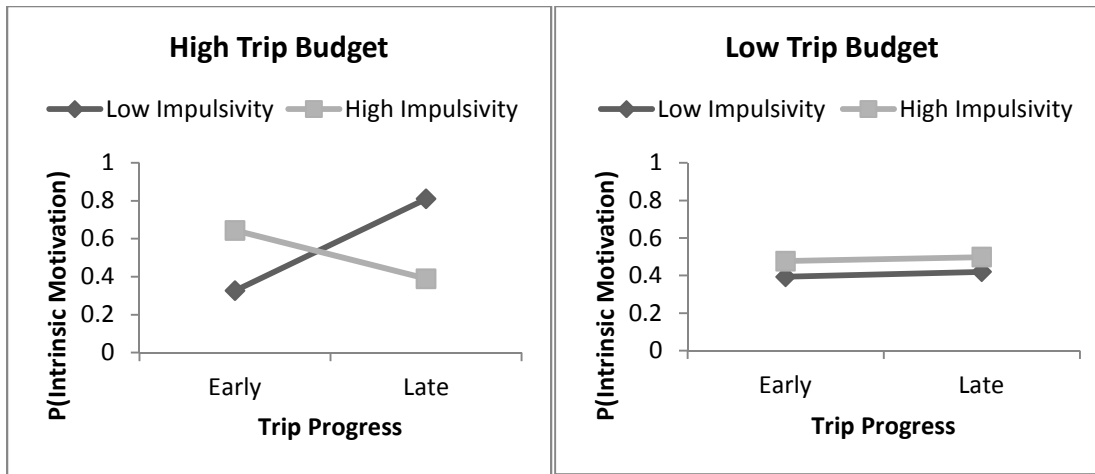


Figure 4: Essay 1, Study 2 – interaction of impulsivity, trip progress, and trip budget

To better understand the interaction between buying impulsivity and trip progress, spotlight tests were conducted within the high budget condition at one standard deviation above and below the mean for buying impulsivity. For low impulsivity consumers, there was a significant positive effect of trip progress on intrinsic motivations ( $\beta = 3.88$ ,  $Z(174) = 4.61$ ,  $p < .0001$ ). For high impulsivity consumers, there was a moderately significant negative effect of trip progress on intrinsic motivations ( $\beta = -1.78$ ,  $Z(174) = -1.62$ ,  $p = .10$ ). As predicted, low impulsivity consumers' intrinsic motivations increased with trip progress and high impulsivity consumers' intrinsic motivations slightly declined with trip progress.

In addition, we conducted a set of spotlight analyses within the high budget condition at one standard deviation above and below the mean for trip progress. Buying impulsivity had a significant impact on the likelihood of intrinsic motivations at the beginning of a shopping trip ( $\beta = 2.99$ ,  $Z(174) = 3.52$ ,  $p < .01$ ) and a moderately significant impact later in a shopping trip ( $\beta = -0.68$ ,  $Z(174) = 1.67$ ,  $p = .10$ ). Overall, high impulsivity and low impulsivity consumers exhibit a complete switch in motivations for unplanned purchases within a shopping trip.

## **Discussion**

As in Study 1, we found that consumers balanced their intrinsic and extrinsic motivations for non-list purchases throughout a shopping trip. When participants were allocated a large shopping budget, high impulsivity consumers initially had stronger intrinsic motivations, whereas low impulsivity consumers initially had stronger extrinsic motivations. Then, as trip progress increased, consumers became less likely to make unplanned purchases for their initial motivations and the likelihood of the opposite motivation increased. In contrast, the relative likelihood of intrinsic as opposed to extrinsic motivations for an unplanned purchase did not change for either high or low impulsivity participants who were allocated a small shopping budget. This study contributes to the internal validity of the motivation balancing phenomenon and the boundary condition of budget focus by manipulating budget and randomizing the product presentation and motivation solicitation order. In addition, despite differences in the absolute levels of intrinsic and extrinsic motivations due to the change in context and subject pool, the replication of the in-store motivation balancing phenomenon for high budget consumers demonstrates the generalizability of our theory.

### **STUDY 3: SHOPPING EXPERIMENT WITH MANIPULATED BUDGET FOCUS**

The purpose of Study 3 is to better understand the mechanism by which trip budget impacts the in-store motivation balancing phenomenon. Rather than measuring or manipulating shoppers' total budgets, we manipulated consumers' focus on their budget while keeping the actual budget and amount of budget slack (i.e., the difference between the cost of planned purchases and overall budget) constant. This tests whether the mechanism underlying the boundary condition of a low budget is increased budget salience (i.e., budget focus) as opposed to absolute resource availability (e.g., budget slack). In addition to manipulating budget focus, we address a couple other issues of

internal validity. First, we temporally separate the measurement of buying impulsivity from the shopping exercise. Second, we measure motivations for unplanned purchases using scales of intrinsic and extrinsic motivation rather than the free response protocol used in Studies 1 and 2. Third, we increased the temporal accuracy of the trip progress measure by using the time in a shopping trip that an unplanned purchase was made rather than relative category order as in Study 2.

### **Study Design and Data Preparation**

Seventy-nine undergraduate students participated in this study for course credit. The procedure was identical to Study 2 except for the following changes. First, all participants were placed into the large (\$50) budget condition. Second, after receiving the budget and shopping list, half of the participants were randomly assigned into a “budget focus” condition. In this condition, participants were asked to “use their shopping list to keep track of their budget.” No other changes to the instructions were made. Third, as will be described in the following paragraph, the dependent variable was changed to six items that measure intrinsic and extrinsic motivation for purchase. Fourth, buying impulsivity was measured twenty minutes after the shopping exercise rather than immediately afterwards. In addition, this study used a back-end methodology to measure the exact time within a shopping trip that a purchase was made. We used the time within a shopping trip that a shopper visited a category as a measure of trip progress.

Our data set consisted of 373 non-list purchases made by 71 participants (seven participants were excluded because they never shop for groceries and one participant was excluded because of confusion with the instructions). The dependent variable was the difference between consumers’ intrinsic and extrinsic motivations for each purchase. The intrinsic motivation items were “I thought I would enjoy the product” and “I was

interested in the product.” The extrinsic motivation items were “To save money,” “The price of the product,” “The product will help me achieve a practical goal,” and “I needed to purchase the product.” The dependent variable was created by subtracting the average of the extrinsic motivation items from the average of the intrinsic motivation items. Thus, a larger positive value for the dependent variable indicated that a purchase was more intrinsically than extrinsically motivated. Similar to Study 2, participants reported greater intrinsic than extrinsic motivations for purchase as evidenced by a mean significantly greater than zero ( $M_{motivation} = 2.15$ ;  $t(373) = 21.25$ ,  $p < .0001$ ).

## Results

The motivation dependent variable was regressed on buying impulsivity, trip progress, budget focus, category hedonicity, and all interactions between buying impulsivity, trip progress, and budget focus. The model predicted the difference between intrinsic and extrinsic motivation for purchase using a regression with the participant treated as a repeated variable. Buying impulsivity, trip progress, and category hedonicity were mean-centered. Since high versus low trip budget was randomly assigned it was contrast coded (i.e., budget focus = 1; no budget focus = -1). Appendix A includes summary statistics and Appendix B includes full model results.

First, the main effect of buying impulsivity was nonsignificant ( $\beta = -0.19$ ,  $Z(373) = -1.18$ ,  $p = .24$ ) and the main effect of trip progress was moderately significant ( $\beta = 0.001$ ,  $Z(373) = 1.64$ ,  $p = .10$ ). Second, the interaction between impulsivity and trip progress was significant ( $\beta = -0.002$ ,  $Z(373) = -2.27$ ,  $p = .02$ ), indicating that the pattern of motivations within a shopping trip depends on buying impulsivity. Third, as predicted, the three-way interaction between impulsivity, trip progress, and trip budget was significant ( $\beta = 0.004$ ,  $Z(373) = 3.93$ ,  $p < .0001$ ). Spotlight tests for trip budget at one



standard deviation above and below the mean provide evidence that the interaction between impulsivity and trip progress was significant when participants are not instructed to track their budget ( $\beta = -0.006$ ,  $Z(373) = -4.50$ ,  $p < .0001$ ), but nonsignificant when they are instructed to track their budget ( $\beta = 0.002$ ,  $Z(373) = 1.18$ ,  $p = .24$ ). Figure 5 illustrates the two-way interactions between buying impulsivity and trip progress for no budget focus and budget focus consumers.

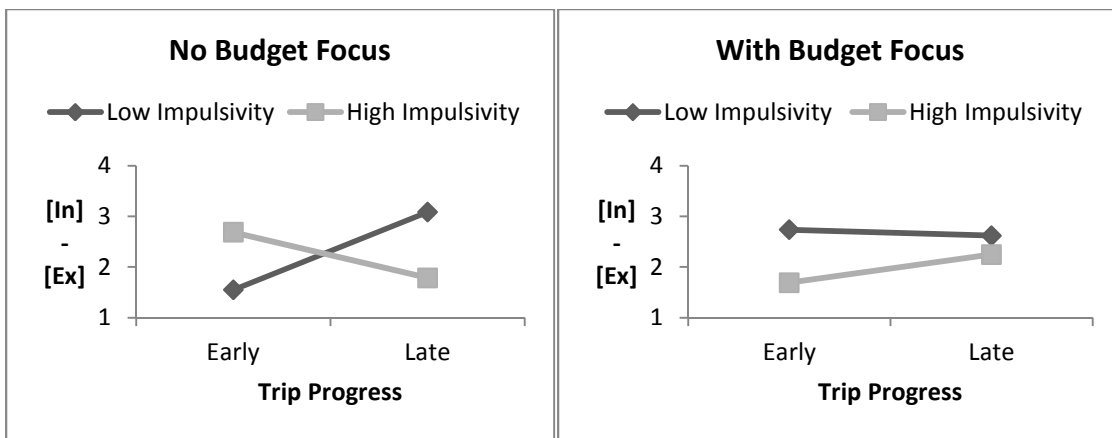


Figure 5: Essay 1, Study 3 – interaction of impulsivity, trip progress, and budget focus

To better understand the interaction between buying impulsivity and trip progress, spotlight tests were conducted within the no budget focus condition at one standard deviation above and below the mean for buying impulsivity. For low impulsivity consumers, there was a significant positive effect of trip progress on intrinsic motivations ( $\beta = 0.007$ ,  $Z(373) = 4.31$ ,  $p < .0001$ ). For high impulsivity consumers, there was a significant negative effect of trip progress on intrinsic motivations ( $\beta = -0.004$ ,  $Z(373) = -2.54$ ,  $p = .01$ ). As predicted, low impulsivity consumers' likelihood of intrinsic as opposed to extrinsic motivations increased with trip progress and high impulsivity consumers' relative likelihood of intrinsic motivations declined with trip progress.

In addition, we conducted a set of spotlight analyses within the no budget focus condition at one standard deviation above and below the mean for trip progress. Buying impulsivity had a significant impact on the likelihood of intrinsic motivations at the beginning of a shopping trip ( $\beta = 0.79$ ,  $Z(373) = 2.66$ ,  $p < .01$ ) and a significant impact later in a shopping trip ( $\beta = -0.72$ ,  $Z(373) = -2.42$ ,  $p = .02$ ). As in Study 2, high impulsivity and low impulsivity consumers were found to have completely opposite motivations for unplanned purchases early and late in their shopping trips.

## **Discussion**

Study 3 replicated the in-store motivation balancing phenomenon and makes two additional contributions to our research. First, it provides evidence that greater budget focus is at least partially responsible for the boundary condition of low trip budget in past studies. Second, it increases the internal and external validity of the motivation balancing phenomenon by using a scale dependent variable as opposed to a free response protocol, temporally separating the buying impulsivity measurement from the shopping trip, and tracking trip progress as relative trip duration rather than category order. Finally, while budget focus mitigated the motivation balancing effect, we note an unpredicted effect of the budget focus manipulation on consumers' initial motivations for unplanned purchases. In the budget focus condition, high impulsivity consumers actually were more likely to have extrinsic motivations for unplanned purchases at the beginning of a shopping trip than low impulsivity consumers. As we discuss in the general discussion, understanding the factors that change the absolute levels of consumer motivations is an important area for future research.

## GENERAL DISCUSSION

The purpose of this research is to improve our understanding of the psychological process of in-store decision making by investigating consumers' motivations for unplanned purchases in a sequential decision making framework. Our primary contribution is the introduction of the in-store motivation balancing phenomenon. In contrast to past research on sequential choice in marketing (e.g., Dhar and Simonson 1999; Khan and Dhar 2006), our research addresses *why* a purchase is made as opposed to *what* is chosen. A field study and two shopping experiments provide evidence that motivations for unplanned purchases change within a shopping trip as predicted by a three-way interaction between buying impulsivity, trip progress, and budget focus.

We find that high impulsivity consumers have stronger intrinsic motivations for unplanned purchases when they begin shopping whereas low impulsivity consumers initially have stronger extrinsic motivations. Then, as consumers spend more time in the store, they become increasingly likely to have motivations opposite their initial dispositions: the likelihood of extrinsic motivations increases for high impulsivity consumers and the likelihood of intrinsic motivations increases for low impulsivity consumers. These opposite slopes are the primary evidence for the motivation balancing phenomenon. However, consumers are less likely to exhibit motivation balancing when they are focused on their budget because of low monetary resources or because they are tracking their spending.

### Theoretical Contributions

While motivation is a fundamental aspect of consumer behavior (Hoyer, MacInnis, and Pieters 2013), the literature on motivations for in-store decision making is surprisingly limited. In contrast to past studies which have treated all unplanned purchases as the same behavior (e.g., Bell et al. 2011; Gilbride et al. 2015; Hui, Huang, et

al. 2013; Inman et al. 2009), we distinguish between intrinsically and extrinsically motivated unplanned purchases. This novel approach addresses the criticism that the definition of unplanned purchases aggregates too many different types of behaviors (Rook 1987; Stern 1962). However, it also suggests that past studies have aggregated seemingly different behaviors and, as a result, may have obscured in-store decision making phenomenon such as motivation balancing. Thus, our research motivates the need to distinguish intrinsically motivated unplanned purchases (e.g., impulse purchases) from other types of unplanned purchases rather than substituting aggregate measures of unplanned purchases as has been done in past research (e.g., Babin et al. 1994; Ramanathan and Williams 2007; Rook and Fisher 1995; Vohs and Faber 2007).

In the shopping literature, the in-store motivation balancing phenomenon is a significant contrast from past research that has assumed motivation is a stable pre-trip variable that does not change within a shopping trip (e.g., Arnold and Reynolds 2003; Babin et al. 1994; Childers et al. 2001; Kaltcheva and Weitz 2006). The pattern of consumers' intrinsic and extrinsic motivations for unplanned purchases suggests that shopping motivations can change within the in-store path-to-purchase. Importantly, our findings provide evidence that consumers may have opposite motivations within the same shopping trip which explains why past research has found positive correlations between trip-level intrinsic and extrinsic shopping motivations despite their conceptual dissimilarity (e.g., Babin et al. 1994).

The in-store motivation balancing phenomenon is also notable because past research has not found evidence for the sequential choice theories of goal-balancing and licensing in a shopping context (Dhar and Simonson 1999; Dhar and Khan 2006). For example, Dhar and Simonson (1999) find that consumers do not have a tendency to balance the selection of healthy and unhealthy products within a shopping trip because

they feel a temporal separation between the selection and consumption of products. Supporting this conclusion, Hui, Bradlow, and Fader (2009) found that the balance of hedonic versus utilitarian products in a consumers' shopping cart did not impact the likelihood of purchasing a hedonic as opposed to a utilitarian product. The critical difference in our theory is that we expected *motivations* for purchase (i.e., intrinsic vs. extrinsic motivation) rather than the type of purchase (e.g., hedonic vs. utilitarian product) to change within a shopping trip. Thus, our findings expand sequential choice theory to decision episodes (as opposed to consumption episodes; Dhar and Simonson 1999) over a continuous timeframe where consumers make decisions for themselves and others. This implies that the notion of balancing may apply to decision processes as well as to decision outcomes (Drolet 2002).

Regarding the factors that influence consumers' motivations for unplanned purchases, the three-way interaction between buying impulsivity, trip progress, and budget focus addresses several unanswered questions in the literatures on impulse purchasing, self-control, and shopping budgets. First, while individual differences have been frequently studied in the unplanned purchasing literature (e.g., Kollat and Willett 1967), the trait of buying impulsivity, which should be related to unplanned purchasing, is poorly understood (Rook and Fisher 1995; Vohs and Faber 2007). Past research has found that buying impulsivity has a nonsignificant impact on the incidence of unplanned purchasing (Kollat and Willett 1967; Hui, Huang, et al. 2013) and the choice of hedonic versus utilitarian products (Vohs and Faber 2007). In contrast, our findings suggest that the personality trait of buying impulsivity impacts the motivations for unplanned purchases rather than the incidence of purchase. This finding contributes a better understanding of whether a consumer will construe an action as intrinsically or

extrinsically motivated, an important factor in models of consumer self-control (Inzlicht et al. 2014; Laran and Janiszewski 2011).

Second, the crossover interaction between buying impulsivity and trip progress sheds light on the process of self-regulation during sequential choice. The literature on resource depletion suggests that self-control resources decrease as consumers engage in effortful activity (Muraven and Baumeister 2000). Within a shopping trip, resource depletion theory predicts that consumers will become more susceptible to internal impulses, or intrinsic motivations, as a trip progresses (e.g., Vohs and Faber 2007). However, we provide evidence that the likelihood of consumers' intrinsic motivations for unplanned purchases can be increasing or decreasing within a shopping trip. In other words, the dynamics of self-control are moderated by the construal of an activity rather than governed by a monotonic depletion effect. This finding confirms past evidence that engaging in intrinsically motivated activities can increase self-control, or be vitalizing rather than depleting (Choi and Fishbach 2011; Laran and Janiszewski 2011). Thus, we contribute real-world evidence supporting the movement away from the limited resources view of self-control in favor of the broader and more ecologically valid motivation balancing phenomenon (Inzlicht et al. 2014).

Third, the boundary condition of budget focus contributes to the need to understand the variables that moderate balancing phenomena (Fishbach and Dhar 2005). Building on past research (Dhar and Simonson 1999; Dhar et al. 2007), we provide evidence that salient monetary resources mitigate sequential choice effects during real-world decision making through budget constraints or explicit budget monitoring. Thus, while greater in-store slack has been shown to influence the incidence of unplanned purchasing (Stilley et al. 2010a), our results demonstrate that the psychological construct of budget focus impacts consumers' motivations for unplanned purchases. This also

expands our knowledge of the differences between budget and non-budget shoppers to shopping motivations (van Ittersum, Pennings, and Wansink 2010). In particular, our research suggests that consumer budgeting tactics, such as smart shopping carts (e.g., van Ittersum et al. 2013), may reduce the likelihood of motivation balancing for non-budget shoppers. Thus, modelling variations in consumers' attention to budget constraints can improve our understanding of how consumers allocate and spend their discretionary income for unplanned wants as opposed to instrumental needs.

### **Marketer and Consumer Implications**

Our research contributes actionable insights for retailers and manufacturers to become more customer-centric while increasing profits. The high frequency of non-price motivations for unplanned purchases suggests that marketers should consider whether their merchandising and promotional tactics adequately cater to consumers' intrinsic and non-economic extrinsic motivations. While the majority of past research on retail promotion concentrates on price cuts (Ailawadi et al. 2009), our research suggests that non-price tactics can also stimulate incremental unplanned purchases. For instance, in-store signage that highlights the experiential elements of a product would be attractive to high impulsivity consumers early in their shopping trips and low impulsivity consumers late in their shopping trips. Or, to cater to non-price extrinsic motivations, retailers could merchandise reminders of forgotten needs throughout a shopping trip. Whereas checkout aisles are traditionally dominated by highly hedonic and unhealthy products like candy and sweets, moving a selection of frequently purchased and high margin products to the front of the store can increase sales and profits by appealing to high impulsivity consumers' extrinsic motivations at the end of a trip. These non-price tactics are especially attractive because marketers may be able to generate additional unplanned

purchases without the negative effects of price cuts such as increasing price sensitivity (Mela, Gupta, and Lehmann 1997) and decreasing margins (van Heerde, Leeflang, and Wittink 2004).

In addition, shopper marketing managers with the ability to target promotions within a shopping trip can use our findings to maximize the effectiveness of in-store marketing. Several new technologies, such as mobile shopping applications (Hui, Inman, et al. 2013) and on demand coupon printing (Danaher et al. 2015) allow a marketer to decide to who and when a message is delivered to a customer. The in-store motivation balancing phenomenon suggests that at the beginning of a shopping trip, intrinsically motivated consumers may be more receptive to learning about new products, whereas extrinsically motivated consumers prefer to receive price cuts and vice versa at the end of a trip. While in-store targeting technologies are still emerging, it is important to note that the effectiveness of a targeted message may change within a shopping trip based on consumers' motivations. Thus, retailers and manufacturers should invest in understanding the dynamics of customers' motivations for unplanned purchases.

From a consumers' point-of-view, the diversity of motivations for unplanned purchases calls in to question whether unplanned purchases have negative or positive consumer implications. While past research has focused on the tactics that limit the extent of unplanned purchasing (e.g., Inman et al. 2009), our research suggests that the motivations that underlie an unplanned purchase should be considered before stigmatizing in-store decisions as universally impulsive or against long-term interests (e.g., Hoch and Loewenstein 1991). Self-determination theory argues that intrinsic motivations have benefits for people's well-being (Deci and Ryan 2000). In the context of shopping, we believe that intrinsic motivations could promote greater enjoyment by highlighting the experiential nature of consumption (Guevarra and Howell 2015). In



support of the benefits of intrinsic motivations, Lee and Tsai (2014) show that price cuts, an extrinsic motivation for purchase, diminish consumption enjoyment. Thus, consumers may increase their satisfaction with a shopping trip by focusing on their internal reasons unplanned purchases during choice and consumption.

### **Limitations and Future Research**

We attempted to address the limitations of using self-reported consumer motivations in our studies (e.g., Nisbett and Wilson 1977) by testing our hypotheses with different motivation elicitation methods and in diverse shopping contexts. Future research could consider additional ways to measure consumers' motivations for unplanned purchases, such as through the effectiveness of in-store marketing. For example, messages that highlight intrinsic motivations (e.g., "Experience the Difference") as opposed to extrinsic motivations (e.g., "Ad Saver") should be more effective for high impulsivity as opposed to low impulsivity consumers at the beginning of their shopping trip. In a pilot study for a follow-up research project, we recruited seventy-five frequent grocery shoppers using Amazon Mechanical Turk to participate in a shopping experiment where we manipulated the type of point-of-purchase messages at unplanned category displays. The dependent variable was whether a consumer made an unplanned purchase at a given display and we also measured consumers' buying impulsivity after the shopping trip was completed. The key result was a significant three-way interaction between message type (i.e., intrinsic vs. extrinsic), buying impulsivity, and trip progress ( $\beta = -0.7134$ ,  $Z(963) = -2.63$ ,  $p = .0084$ ). Consumers were more likely to make an unplanned purchase when the message at a display matched their predicted shopping motivations. Thus, further investigating a dynamic "message-to-motivation" matching

phenomenon could give credence to the in-store motivation balancing phenomenon and have significant managerial implications.

Another limitation is that our research addresses a narrow set of variables that impact consumers' motivations for unplanned purchases. The dynamics and absolute levels of purchase motivations may be affected by other category characteristics like usage rate or in-store location (Inman et al. 2009; Suher and Sorensen 2010) and shopping contexts or trip type (Bell et al. 2011; Wakefield and Inman 2003). For example, in an ancillary study, we recruited fifty-one frequent grocery shoppers using Amazon Mechanical Turk to participate in a shopping experiment where we manipulated whether the purpose of the shopping trip was for “fun” or “work” (Laran and Janiszewski 2011). In support of the in-store motivation balancing phenomenon, motivations for unplanned purchases were impacted by a significant interaction between trip progress and trip purpose ( $\beta = -1.92$ ,  $Z(250) = -2.24$ ,  $p = .03$ ). As trip progress increased, participants shopping for “fun” experienced a decrease in intrinsic motivations ( $\beta = -0.93$ ,  $Z(250) = -1.97$ ,  $p = .05$ ), while those shopping for “work” experienced an increase in intrinsic motivations ( $\beta = 1.92$ ,  $Z(250) = 2.24$ ,  $p = .06$ ). Future work should consider additional variables within a marketer's control (e.g., loyalty card data) that impact consumers' dynamic motivations.

Methodologically, there are different ways to model the dynamics of sequential decision making. We use a hierarchical model with the consumer as a repeated variable to examine the linear effect of trip progress on the change in consumers' motivations. Future research may consider developing a true within-consumer test of changes in motivations over time or look at the direct effect of the previous purchase on the motivation for the current purchase (Gilbride et al. 2015; Hui, Huang, et al. 2013).

## **Essay 2 – Experience the Difference: The Effect of Intrinsic Motivation In-Store Marketing on Unplanned Purchasing**

### **INTRODUCTION**

Imagine you are the director of shopper marketing for a retail grocery chain and a key goal is to stimulate incremental unplanned purchases of the current product assortment using point-of-purchase signage. Contemporary wisdom indicates that temporary price cuts will increase short-term sales (e.g., Neslin 2002) but also decrease already slim margins (van Heerde, Leeflang, and Wittink 2004) and may result in brand-switching or stock-piling rather than truly incremental purchases (e.g., Bell, Chiang, and Padmanabhan 1999). Further, recent studies reveal that price cuts can decrease consumers' satisfaction with their consumption experience (Lee and Tsai 2014). Fortunately, technological advances have enabled the implementation of new in-store communication tactics such as digital signage and targeted messaging that can display non-economic point-of-purchase messages (Roggeveen, Nordfält, and Grewal 2015). Thus a critical question is: Can point-of-purchase signage stimulate incremental unplanned purchases by appealing to consumers' non-price motivations?

The answer to this question has important implications for the burgeoning industry of shopper marketing, which involves marketing activities that influence a consumer during the path-to-purchase (Shankar et al. 2011). Because of the aforementioned drawbacks of price cuts, determining how non-economic promotional tactics can stimulate incremental unplanned purchases would be a win-win-win for retailers, manufacturers, and consumers. Supporting the importance of this question, the increasing fragmentation of traditional media had led manufacturers and retailers to rapidly invest in new in-store communication tactics (Grewal, Roggeveen, and Nordfält 2014). By doing so, marketers hope to stimulate incremental unplanned purchases which

account for over 50% of grocery purchases (POPAI 2012) without reducing product margins. For example, the majority of top US retailers use some form of non-price recommendation signage (Goodman et al. 2013) and many have implemented digital displays to deliver non-price messages to consumers during their in-store path-to-purchase (Roggeveen et al. 2015). However, despite the significant managerial interest, there is a dearth of academic research on the effectiveness of non-price in-store marketing.

Past studies on retail promotion have almost exclusively focused on economically-driven tactics (e.g., price cuts, coupons, free products, or sweepstakes) and displays or feature advertisements coordinated with temporary price cuts (Ailawadi et al. 2009; Chandon, Wansink, and Laurent 2000; Grewal et al. 2011; Kahn and McAlister 1997; Neslin 2002). For example, Ailawadi et al. (2009, pg. 48) find that the “vast majority of research on promotions involves price promotions with or without accompanying features or displays.” In the context of unplanned purchasing, past research has provided evidence that two types of in-store marketing, displays and feature advertisements, can increase the likelihood that a purchase is unplanned (e.g., Hui, Huang, et al. 2013; Inman, Winer, and Ferraro 2009). Based on shopper recall, Inman et al. (2009) reported that purchases made from in-store displays were more likely to be unplanned than planned purchases and, using direct observation, Hui, Huang, et al. (2013) found that unplanned categories promoted in feature advertisements are more likely to be considered for purchase. However, since 42.7% to 84.3% of displays and 81.7% to 100% of feature advertisements are accompanied by price cuts (Zhang 2006), it is unclear whether in-store marketing can stimulate unplanned purchasing in the absence of a price cut.

Only a few studies have investigated the impact of promotional tactics independent of economic incentives or free gifts. For example, Dennis et al. (2010; 2012) found that consumers report buying more items and spending more time in malls with digital displays as opposed to malls without digital displays. At the brand choice level, non-price point-of-purchase signage, such as recommendation signage (Goodman et al. 2013) or nutritional information (Nikolova and Inman 2015), can increase a brand's sales relative to its competitors. However, the usage of non-economic in-store tactics has not always been successful. In a field experiment, Roggeveen et al. (2015) found that the implementation of non-price in-store digital signage does not increase the amount of spending in grocery stores. Thus, the limited research on non-economic retail tactics is inconclusive as to when non-economic promotional tactics are an effective means for stimulating incremental unplanned purchases.

Surprisingly, in contrast to the lack of research on non-economic retail promotions, there is ample evidence that consumers' purchase decisions are about more than price. The literature on shopping motivation advances the idea that in-store decision making is frequently driven by non-economic motivations (e.g., Babin, Darden, and Griffin 1994; Chandon et al. 2000; Holbrook and Hirschman 1982). In addition to economic motivations, consumers make purchase for intrinsic motivations (e.g., fun, pleasure, and interest) and non-economic extrinsic motivations (e.g., instrumental needs; Deci and Ryan 1985). For example, Hoyer (1984) found that while 22.5% of consumers' purchase decisions were motivated by price tactics, over twice as many purchases were motivated by either performance tactics (28.3%) or affect tactics (20%). Similarly, Stilley, Inman, and Wakefield (2010a) found that consumers report having in-store budget slack to make unplanned purchases for wanted items (52.4%) and forgotten needs (38.1%) more frequently than for price motivations (11.1%). Thus, if consumers

frequently have non-economic shopping motivations, the lack of support for non-economic promotional tactics may be because past research has not considered the impact of shopping motivations on the effectiveness of in-store marketing.

Taking all of this together, there is a major gap in our knowledge regarding if and how non-price in-store marketing can effectively stimulate incremental spending when consumers have non-economic shopping motivations. To address this research gap, we investigate the relationship between point-of-purchase messages (i.e., signage at product displays) and consumers' shopping motivations on the likelihood that a consumer makes an unplanned purchase from a display. While point-of-purchase messages have received less academic attention than price cuts, they are a primary means for retailers and manufacturers to communicate with consumers (Burke 2009).

Based on motivation theory (Deci and Ryan 1985), we distinguish a form of non-price in-store marketing, intrinsic motivation messages, from price-related messages and non-price extrinsic motivation messages. Intrinsic motivation messages are those that appeal to consumers' internal interest and enjoyment of a product (e.g., "Experience the Difference"). In contrast, price-related messages highlight economic reasons for purchase (e.g., a price cut, coupon, or free gift) and non-price extrinsic messages refer to instrumentality of an action such as satisfying a "forgotten need." After substantiating this distinction, we develop and test hypotheses for when intrinsic messages can effectively stimulate incremental unplanned purchases. Our research agenda is summarized by the following three questions:

1. Are intrinsic motivation point-of-purchase messages (e.g., "Experience the Difference") positively related to consumers' intrinsic motivations for purchase?

2. What between and within shopper factors influence when a consumer is most likely to make an unplanned purchase from a display with an intrinsic motivation message?
3. How does the effectiveness of intrinsic motivation messages compare to price and non-price extrinsic motivation messages (e.g., “Low Price” or “Best Seller”)?

To address these questions, we first assess the frequency of different point-of-purchase messages in a field survey and test whether intrinsic motivation messages are naturally related to intrinsic as opposed to extrinsic motivations for purchase. Then, we investigate whether the effectiveness of intrinsic messages depends on consumers’ motivations at the point-of-purchase. In particular, based on the general fit literature (e.g., Lee and Higgins 2009), we propose that intrinsic messages will be most effective when consumers have intrinsic shopping motivations. However, this “message-to-motivation” matching hypothesis is complicated by the fact that motivations for unplanned purchases may change during a shopping trip (Suher and Hoyer 2016). Thus, in two shopping experiments, we treat motivation as a dynamic factor that changes as consumers spend more time shopping (i.e., trip progress) and is influenced by the purpose of a shopping trip (i.e., work vs. fun; Laran and Janiszewski 2011) and the personality trait of buying impulsivity (Rook and Fisher 1995). Finally, we compare the effectiveness of intrinsic motivation messages to price and non-price extrinsic motivation messages.

In the process of answering our research questions, we make three major contributions to the literatures on in-store decision making and retail promotion. First, we distinguish between different types of non-economic point-of-purchase messages and demonstrate the relationship between intrinsic messages and intrinsic motivations for purchase. The importance of this contribution is underscored by a field survey that

demonstrates the frequent usage of non-economic messages at promotional retail displays. The relationship between messages and motivations suggests that non-economic retail promotion can achieve more directed purposes than simply increasing attention to product displays. Whereas past research has found that non-economic tactics, like displays and increasing shelf space, are effective because they increase attention to a product (e.g., Chandon et al. 2009; Dreze, Hoch, and Purk 1995), our research suggests that point-of-purchase messages can influence consumers' appraisals of products and displays during evaluative stages of decision making (Hui, Huang, et al. 2013; Russo and Leclerc 1994). Thus, we learn how in-store marketing can play different functions at different stages in the in-store path-to-purchase.

Second, building on the relationship between messages and motivations, we provide evidence that consumers' response to in-store marketing is moderated by their dynamic shopping motivations. Supporting our message-to-motivation matching hypotheses, we expect that consumers' trip purpose (i.e., fun vs work) and the personality trait of buying impulsivity will dynamically impact the likelihood of purchase from a display with an intrinsic point-of-purchase message. We propose that consumers who begin shopping with intrinsic motivations (e.g., on a shopping trip for fun or a high impulsivity consumer) will be initially more likely to purchase from a display with an intrinsic message but this likelihood will decline as they spend more time shopping. However, we predict that consumers with initial extrinsic shopping motivations (e.g., on a shopping trip for work or a low impulsivity consumer) will become more likely to purchase from a display with an intrinsic motivation message as they spend more time shopping. Whereas past research has generally treated shopping motivation as a static trip-level factors (e.g., Bell, Corsten, and Knox 2011), our hypotheses counterintuitively suggest that the effectiveness of in-store marketing may change within a shopping trip.



Thus, it is necessary to supplement the decision of who to target (Grewal et al. 2011) with an analysis of when to target a consumer within her in store path-to-purchase.

Third, we examine whether intrinsic motivation messages can be more effective at stimulating incremental unplanned purchases than price and non-price extrinsic messages when correctly targeted to consumers' dynamic motivations. While there has been increasing interest in the drivers of unplanned purchases, our research is the first to investigate the effect of non-price in-store marketing on incremental purchasing. Past research on unplanned purchasing has considered the total amount of unplanned purchasing (e.g., Bell et al. 2011; Hui, Inman, et al. 2013; Kollat and Willett 1967) or whether a given purchase is unplanned or not (e.g., Gilbride, Inman, and Stilley 2015; Inman et al. 2009). In contrast, we study the dynamics of in-store decision making unconditional on a purchase being made and directly compare the effectiveness of different forms of in-store messaging. This is especially relevant because the recent emergence of e-commerce and mobile technology allows marketers to personalize the customer experience in real time through mobile applications, digital signage, and in-store displays (Baik, Venkatesan, and Farris 2014). For example, the start-up company ShelfBucks delivers discounts and personalized messages to shoppers based on their in-store location. In response to this technological force, our research provides actionable insights to deliver the right message to the right shopper at the right time (Danaher et al. 2015).

The remainder of this paper is organized as follows. First, we distinguish between different types of point-of-purchase signage and investigate their relationship to consumers' purchase motivations with two field studies. Then, we develop hypotheses to address how and when intrinsic point-of-purchase messages can effectively stimulate incremental unplanned purchases. Our predictions are tested with two controlled

shopping experiments. In conclusion, we discuss the theoretical contributions and managerial significance of our research.

### **SHOPPING MOTIVATIONS AND POINT-OF-PURCHASE MESSAGES**

A long tradition in psychology supports a dichotomy (or at least a continuum) of motivations for any activity: from intrinsic motivation (also called “internal” motivation) to extrinsic motivation (also called “instrumental” motivation) (Deci and Ryan 1985). With regards to motivations for consumer behaviors, past research has shown that the distinction between intrinsic and extrinsic motivations applies to product choice (Chandon et al. 2000; Moore 2015; Van Trijp, Hoyer, and Inman 1996). A product can be selected for personal interest and enjoyment (i.e., intrinsic motivation) or because it is instrumental towards the accomplishment of a separable goal like saving money or purchasing forgotten needs (i.e., extrinsic motivation). Thus, based on the consumer motivation literature, we distinguish between three types of messages that can be displayed at point-of-purchase signage: intrinsic motivation messages, price-based extrinsic motivation messages, and non-price extrinsic motivation messages.

An intrinsic motivation message appeals to the pursuit of actions that are interesting or enjoyable to a consumer. For example, “Try Something New” encourages people to make a purchase out of curiosity (Van Trijp et al. 1996) and “Experience the Difference” refers to an internal urge to purchase (Rook 1987). In contrast, because the antithesis of engaging in an activity for intrinsic motivations is behavior that is motivated by economic benefit (Deci and Ryan 1985), a price-related message appeals to consumers’ extrinsic purchase motivations. For example, a “Low Price” sign suggests an externally imposed reward contingency where a consumer makes a purchase to primarily save money or get a good ‘deal’ (Chandon et al. 2000). However, extrinsic motivations

also include non-economic reasons for action such as the avoidance of punishment and introjected needs like social approval (Ryan and Deci 2000). Thus, the third type of message we consider is a non-price extrinsic message which appeals to instrumental or normative reasons for purchase without reference to economic rewards. For example, “Reminder of Forgotten Needs” suggests the avoidance of punishment for forgetting a necessary action and “Best Quality” or “Top Seller” point out popular norms (Kahneman and Miller 1986) and are external guidelines for choice (Goodman et al. 2013).

Since the frequency and content of point-of-purchase signage is unavailable through typical retail data sources such as IRI scanner data, we conducted two field studies to support the distinction between intrinsic, non-price extrinsic, and price messages. First, we examined the frequency and content of point-of-purchase signage at promotional displays in a longitudinal sample of grocery stores. This survey demonstrates the differences between message types and tests whether intrinsic and non-price extrinsic messages are less likely to be accompanied by price cuts as compared to price-related messages. Second, we conducted a field study to measure the relationship between point-of-purchase messages and consumers’ reasons for making unplanned purchases. The goal of this study was to test whether there is a natural relationship between point-of-purchase messages and consumers’ intrinsic and extrinsic motivations for purchase. Together, these field studies provide external validity to the distinction between message types and initial support for our message-to-motivation matching hypotheses that are introduced later.

### **STUDY 1: FIELD SURVEY OF MESSAGES AT GROCERY DISPLAYS**

The goal of this study was to provide real-world evidence for our proposed distinction between intrinsic, non-price extrinsic, and price-based point-of-purchase

messages. Once per week for three weeks in March 2014, we observed the use of signage and its coordination with temporary price cuts at promotional end cap displays at six supermarkets from national chains in a southwestern city (Progressive Grocer 2010). For each of the 270 end cap displays in our sample, we recorded whether each display featured temporary point-of-purchase signage or a temporary price cut. The display signage was coded for intrinsic messages (0=No; 1=Yes), extrinsic (non-price) messages (0=No; 1=Yes), and price messages (0=No; 1=Yes). The coding of the point-of-purchase messages was conducted by two independent coders trained on the difference between intrinsic and extrinsic motivations (Ryan and Deci 2000). As discussed in the previous section, intrinsic messages promote internal interest and enjoyment of products, extrinsic messages appeal to instrumental or externally-focused goals unrelated to price, and price messages suggest actions for economic benefits. Agreement between coders was 98% for intrinsic motivations, 95% for extrinsic motivations, and 98% for price motivations. All disagreements were resolved through discussion.

As shown in Table 2, which lists the top 20 frequently used messages in our sample, several messages appealed to consumers' intrinsic motivations and non-price extrinsic motivations (note that a single promotional display can have messages that appeal to multiple motivations for purchase). Overall, 81.1% of promotional end caps had some type of temporary point-of-purchase signage at the display. Of the end caps with temporary signage, 19.6% of the end caps had intrinsic motivation messages, 40.0% of end caps had non-price extrinsic motivation messages, and 60.4% of end caps had price-related messages. Supporting the distinction between intrinsic, non-price extrinsic, and price messages, there was a strong negative correlation between the presence of a price cut and an intrinsic message or a non-price extrinsic message ( $r = -0.31, p < .0001$ ;  $r = -0.26, p < .0001$ ), whereas there was a strong positive correlation between the presence of

a price cut and a price-related message ( $r = 0.25$ ,  $p < .0001$ ). The summary statistics and correlation tables from this study are in Appendix E.

	Message	Count	% of Sample	Signage Type		Message	Count	% of Sample	Signage Type
1	Sale	57	21%	Price	11	Healthy living for less	11	4%	Extrinsic/Price
2	Low Prices	45	17%	Price	12	Bountiful bargains	9	3%	Price
3	Great product great price	20	7%	Intrinsic/Price	13	Find More. Save More.	7	3%	Extrinsic/Price
4	Your price after coupon	18	7%	Price	13	Foodie finds	7	3%	Intrinsic
5	Primo picks	16	6%	Intrinsic	13	Healthy savings	7	3%	Extrinsic/Price
6	Combo loco	15	6%	Price	13	Lots of choices that don't cost a lot	7	3%	Extrinsic/Price
6	Local	15	6%	Extrinsic	13	New	7	3%	Intrinsic
6	Organic	15	6%	Extrinsic	13	Suppliers investing in a future without poverty	7	3%	Extrinsic
9	Sandwich Extravaganza!	13	5%	Intrinsic	19	Frozen Headquarters	4	1%	Extrinsic
10	As seen in the Fearless Flyer!	12	4%	Extrinsic	19	Unwavering standards from farm to fork	4	1%	Extrinsic
Note: Signage can have multiple messages									

Table 2: Essay 2 – Top 20 Most Frequent Point-of-Purchase Messages

The end cap signage statistics from this exploratory field survey demonstrate two important points. First, end cap displays are frequently coordinated with point-of-purchase signage. Second, retailers frequently display non-economic messages at in-store promotional displays in addition to price-related promotions as typically focused in past research (e.g., Sale; Low Prices),. In addition, this study provides a sample of the types of messages commonly featured at end cap displays, which will be used as input in developing stimuli for our shopping experiments.

## STUDY 2: FIELD SURVEY OF POINT-OF-PURCHASE MOTIVATIONS

To further examine the differences between types of point-of-purchase signage, we conducted an in-store intercept survey to examine whether there is a natural relationship between in-store messages and consumers' shopping motivations. In particular, if messages appeal to different shopping motivations, then there should be congruence between consumers' reasons for making an unplanned purchase and the type of signage at an in-store display. To examine this possibility, we measured consumers'

motivations for purchase at the point-of-purchase immediately after they selected an item from a promotional display. A regional grocery retailer in the southwest was selected for this study because the store frequently displayed two types of point-of-purchase signage, one that appeals to intrinsic motivations for purchase (“Experience the Difference”) and the other related to extrinsic motivations for purchase (“Ad Saver”; see Appendix F for images). These signs were placed on products according to the managers’ promotional schedule.

The field study proceeded as follows. An experimenter inside the store approached shoppers immediately after seeing a completed purchase made from a promotional (i.e., temporary) display. In total, 109 consumers with shopping carts were approached and agreed to participate (no shoppers declined to participate in the survey which was incentivized by a one dollar donation to a local food bank). Before beginning the interview, we recorded whether the display from which the consumer had made a purchase featured either an intrinsic motivation message or the extrinsic motivation message (41 purchases were from displays with intrinsic messages and 23 were from displays with extrinsic messages). Then, participants were asked to describe their reason for the purchase that was just made using the following open-ended questions: “Why did you purchase [the] item?” We also asked participants whether the purchase was planned at the category level, brand level, or neither before the shopping trip began (Kollat and Willett 1967). The following analyses are on 73 purchases that were unplanned at both the category and brand levels; however the results are similar when all purchases are included.

We coded consumers’ reasons for purchase using a similar protocol for the coding of message types in Study 1. Each reason for purchase was rated by two independent coders for the presence of intrinsic motivation (0=No; 1=Yes), non-price extrinsic

motivation (0=No; 1=Yes), and price-related motivation (0=No; 1=Yes). A purchase was coded as intrinsically motivated if the reason for purchase represented internal interest or enjoyment, such as saying that the product “looked good” or the participant “wanted it.” A purchase was coded as extrinsically motivated if it was made for an instrumental non-economic reason, such as “remembering” or “needing” to purchase the product and purchasing for someone else. A purchase was coded as price motivated if the shopper indicated an economic motivation for purchase, such as a “low price,” “saving money,” or redeeming a coupon. Agreement between coders was 94% for intrinsic motivation, 90% for extrinsic motivations, and 98% for price motivations. All discrepancies were resolved through discussion.

Consistent with our expectations of congruence between message type and shopping motivations, we found a significant positive correlation between the intrinsic motivation message as opposed to the extrinsic motivation message and an intrinsic reason for purchase ( $r = 0.34, p < .01$ ). In contrast, there was a significant negative correlation between the message type (i.e., Intrinsic message = 1; No message = 0; Extrinsic message = -1) and a price-related reason for purchase ( $r = 0.39, p < .01$ ). However, the correlation between message type and a non-price extrinsic reason for purchase was nonsignificant ( $r = -0.13, p = .27$ ). The results suggest that there is a positive relationship between intrinsic motivations for purchases and intrinsic point-of-purchase messages.

We conducted a follow-up analysis to investigate whether the relationship between intrinsic messages and intrinsic motivations remained even when controlling for product category hedonicity. We regressed the contrast between intrinsic and extrinsic motivations (i.e., Intrinsic = 1; Non-Price Extrinsic = 0; Price = -1) on the message type and the hedonicity of the purchased product category (taken from Wakefield and Inman

2003). There was a significant positive effect of message type on reason for purchase ( $\beta = 0.29$ ,  $Z(1,69) = 3.24$ ,  $p < .01$ ), indicating that consumers are more likely to have intrinsic as opposed to price-based reasons for purchase when making an unplanned purchase from a display with an intrinsic as opposed to extrinsic message. Category hedonicity was a nonsignificant predictor of purchase motivations ( $\beta = -0.02$ ,  $Z(1,69) = -0.30$ ,  $p = .77$ ). This rules out the alternative explanation that the possible placement of intrinsic signage at highly hedonic categories (e.g., candy) led to the positive relationship between intrinsic messages and intrinsic motivations.

Overall, the purpose of Study 2 was to provide real-world evidence for a natural relationship between point-of-purchase messages and consumers' purchase motivations. This is important because it suggests that consumers may be more likely to make an incremental unplanned purchase from a display that matches their shopping motivations and that consumers are motivated by more than price. We now investigate our second and third research questions: what between and within shopper variables influence the effectiveness of intrinsic point-of-purchase messages at stimulating incremental unplanned purchases and what is the relative effectiveness of intrinsic messages as opposed to price and non-price extrinsic messages.

#### **WHEN WILL INTRINSIC MESSAGES STIMULATE UNPLANNED PURCHASES?**

One of the main purposes of in-store stimuli, such as point-of-purchase messages, is to stimulate incremental unplanned purchases (Inman et al. 2009). For example, in the context of unplanned purchasing, Bell et al. (2011, pg. 35) state that "shopper responsiveness to marketing stimuli is the *sine qua non* of research in retailing." Thus, based on the distinction between intrinsic, non-price extrinsic, and price messages, we investigated the causal impact of point-of-purchase messages on unplanned purchasing.



In particular, we propose that consumers are more likely to make an unplanned purchase from a display when the point-of-purchase signage is consistent, as opposed to inconsistent, with their shopping motivations.

Our “message-to-motivation” matching theory is supported by a general fit principle, which has been shown to hold across different domains of consumer behavior. Research on the fit principle has demonstrated that marketing stimuli such as persuasive appeals and promotions are evaluated more positively if their attributes match the goals a consumer is currently pursuing (for a review see Lee and Higgins 2009). For example, Edwards (1990) found that hedonic information on the smell of a beverage is more persuasive than utilitarian information on its storage requirements when the attitude toward the beverage is based on hedonic benefits (taste) than when it is based on utilitarian benefits (nutrition). In addition, Chandon et al. (2000) demonstrated that congruency between the type of benefit delivered by a promotion and the hedonicity of a product has a positive effect on promotion effectiveness. Consumers evaluated price cuts more favorably if the promotions accompanied utilitarian products, and evaluated free gifts more favorably if the promotions accompanied hedonic products.

Whereas past research has demonstrated the fit between promotional appeals and stable product characteristics (e.g., hedonic versus utilitarian products), we propose that the fit between the type of point-of-purchase message and consumers’ shopping motivations affects the likelihood of making an unplanned purchase from a product display. However, the relationship between messages and motivations is complicated by the fact that consumers’ motivations for purchase can change within a shopping trip (Suher and Hoyer 2016). Thus, it is necessary to understand the dynamics of consumers’ shopping motivations to predict the effectiveness of point-of-purchase messages at stimulating incremental unplanned purchases.

## **The Dynamics of Shopping Motivations**

While shopping research has traditionally focused on consumers' shopping motivations at a static trip-level (e.g., Arnold and Reynolds 2003; Babin et al. 1994; Childers et al. 2001; Kaltcheva and Weitz 2006), recent findings in the motivation literature suggest that motivations for purchase change within a shopping trip. In particular, the process model of cognitive control in sequential activities (Inzlicht, Schmeichel, and Macrae 2014; Kool and Botvinick 2014) predicts that people seek an optimal balance between allocating cognitive resources to pursue “*have-to*” activities versus the pursuit of “*want-to*” activities. That is, when people are engaged in a sequential decision making task, they have a natural tendency to shift between extrinsic motivations and intrinsic motivations over a set of choices (Choi and Fishbach 2011; Laran and Janiszewski 2011). For example, Laran and Janiszewski (2011) found that people showed greater intrinsic motivation in a self-control task after an initial taste test was extrinsically motivated as opposed to intrinsically motivated. Importantly, while the initial task stayed the same, the reasons for engaging in the task led to changes in consumers' motivations for a subsequent activity. In the context of in-store decision making, this balancing phenomenon manifests in the form of “in-store motivation balancing,” or the tendency for consumers' motivations for in-store decisions to change in opposition of their initial motivations as they spend more time shopping (Suher and Hoyer 2016).

The in-store motivation balancing phenomenon proposes that consumers' motivations for unplanned purchases can change in two directions over the course of a shopping trip: (1) consumers can begin with intrinsic motivations and then have more extrinsic motivations as the trip progresses and, the opposite pattern, (2) consumers can begin with extrinsic motivations and then have more intrinsic motivations as the trip

progresses. Therefore, it is necessary to understand a consumer's initial shopping motivations and current stage in a shopping trip (i.e., trip progress) to predict a shopper's responsiveness to a point-of-purchase message. In particular, we develop hypotheses for two variables that impact consumers' initial shopping motivations and, thus, the dynamics of shopping motivations within a shopping trip: the purpose of a shopping trip and the individual difference of buying impulsivity.

### ***Trip Purpose***

It is well-established that consumers go to stores with the purpose of satisfying the two fundamental motivations mentioned earlier: intrinsic motivations (i.e., intrinsic) and extrinsic motivations (i.e., instrumental) (see Kaltcheva and Weitz 2006 for a review). In particular, the distinction between a shopping trip for the purpose of satisfying intrinsic as opposed to extrinsic motivations has frequently been described as shopping for “fun” as opposed to shopping for “work.” For example, Babin et al. (1994) develop a scale to assess whether consumers feel that a shopping experience provides “fun” (i.e., hedonic or intrinsic shopping value) or “work” (i.e., utilitarian or extrinsic shopping value). Shopping for fun describes consumers engaging in shopping to derive inherent satisfaction from the shopping activity itself. In this case, the shopping activity is freely chosen and there is no need to engage in it. In contrast, shopping for work involves consumers engaging in shopping out of necessity to obtain needed products, services, or information with little or no inherent satisfaction derived from the shopping activity itself (Kaltcheva and Weitz 2006).

Based on the distinct reasons that people go shopping, we propose that trip purpose (i.e., shopping for fun vs. as an obligation to work) should influence whether consumers' are initially more likely to have intrinsic or extrinsic shopping motivations

for unplanned purchases. On the one hand, when the purpose of a shopping trip is to have fun we expect consumers to be initially more likely to have intrinsic motivations for unplanned purchases. This is supported by evidence that construing an activity as fun engenders intrinsic motivations and promotes the pursuit of personal interests and desires (Laran and Janiszewski 2011). On the other hand, when the purpose of a shopping trip is work we expect consumers to be initially more likely to have extrinsic motivations for unplanned purchases. Construing an activity as work increases feelings of external control (Inzlicht et al. 2014) and people become more focused on external rewards and instrumental or introjected goals (Ryan and Deci 2000).

However, as introduced earlier as motivation balancing, past research on sequential decision making suggests that consumers' shopping motivations may change over a series of choices (Inzlicht et al. 2014). In the context of shopping, the in-store motivation balancing phenomenon predicts that consumers' motivations change in opposition to their initial reasons for shopping (Suher and Hoyer 2016). Thus, when a shopping trip is construed as fun, consumers begin with intrinsic shopping motivations and then have more extrinsic motivations as the trip progresses. In contrast, consumers who construe a shopping trip as an obligation to work will begin with extrinsic shopping motivations and then have more intrinsic motivations as the trip progresses.

Based on the general fit principle, the motivation balancing phenomena should manifest in consumers' response to point-of-purchase messages. In particular, we expect that consumers will be more likely to purchase from a display with an intrinsic message when they are predicted to have stronger intrinsic motivations: early in a trip when shopping for fun or later in a trip when shopping for work. In addition, consistent with the change in response to intrinsic messages, we expect the relative effectiveness of intrinsic messages as opposed to extrinsic messages (i.e., price and non-price extrinsic)

will be greater when consumers are predicted to have intrinsic as opposed to extrinsic shopping motivations.

**H1:** When the purpose of a shopping trip is to have fun, consumers will be most likely to make an unplanned purchase from a display with an intrinsic message at the beginning of a shopping trip and the relative effectiveness of an intrinsic as opposed to an extrinsic message will be greater earlier as opposed to later in a shopping trip.

**H2:** When the purpose of a shopping trip is to work, consumers will be more likely to make an unplanned purchase from a display with an intrinsic message at the end of a shopping trip and the relative effectiveness of an intrinsic as opposed to an extrinsic message will be greater later as opposed to earlier in a shopping trip.

### ***Buying Impulsivity***

In addition to the effect of trip purpose, the personality trait of buying impulsivity has been shown to affect consumers' shopping motivations. Buying impulsivity is defined as a tendency to buy spontaneously, unreflectively, immediately, and kinetically (Rook and Fisher 1995). High impulsivity consumers, as opposed to low impulsivity consumers, are more likely to act on a whim and respond affirmatively and immediately to their buying impulses (Rook 1987). While it may seem that greater buying impulsivity would lead consumers to be more responsive to any type of in-store marketing, past research has shown that buying impulsivity is particularly related to intrinsic motivations for purchase (Suher and Hoyer 2016). For example, Beatty and Ferrell (1998) show that impulsivity has a significant impact on internally motivated unplanned purchases but not on unplanned purchases that were forgotten needs. Thus, at the beginning of a shopping

trip, we expect high impulsivity consumers to be more receptive to messages that reflect intrinsic motivations for purchase (e.g., “Experience the Difference”), whereas low impulsivity consumers will be more likely to respond to price and non-price extrinsic motivation messages (e.g., “Ad Saver” and “Best Seller”).

Again, as previously discussed, the motivation balancing phenomenon predicts that shopping motivations will change in opposition of consumers’ initial dispositions within a trip. If buying impulsivity leads to differences in the initial likelihood of response to intrinsic versus extrinsic point-of-purchase messages, then we expect the pattern of message effectiveness to reverse later in a shopping trip. Consumers who were initially intrinsically motivated (i.e., high impulsivity) will become more likely to make an unplanned purchase from a display with a price or non-price extrinsic message later in a shopping trip to balance their high initial likelihood to act on an internal urge to purchase. However, consumers who were initially extrinsically motivated (i.e., low impulsivity) should exhibit the opposite pattern: the likelihood of response to intrinsic motivation messages will increase during a shopping trip. For example, after being more likely to make an unplanned purchase to save money or acquire a forgotten need, low impulsivity consumers will become more likely to pursue their personal interests later in a shopping trip. Thus, as with the effect of trip purpose, we expect the impact of buying impulsivity on consumers’ response to intrinsic motivation messages to manifest in the likelihood that a consumer makes an unplanned purchase from a display with an intrinsic motivation messages and in the relative effectiveness of intrinsic messages as opposed to extrinsic messages.

**H3:** High impulsivity consumers will be most likely to make an unplanned purchase from a display with an intrinsic message at the beginning of a shopping trip and the relative effectiveness of an intrinsic as opposed to an

extrinsic message will be greater earlier as opposed to later in a shopping trip.

**H4:** Low impulsivity consumers will be more likely to make an unplanned purchase from a display with an intrinsic message at the end of a shopping trip and the relative effectiveness of an intrinsic as opposed to an extrinsic message will be greater later as opposed to earlier in a shopping trip.

### **Summary of Shopping Experiments**

Studies 3 and 4 are controlled shopping experiments to test whether the effectiveness of point-of-purchase messages is moderated by consumers' dynamic shopping motivations. In both studies we directly manipulate the type of message at product displays to investigate the causal effect of signage on the likelihood of making an incremental unplanned purchase. Shopping motivation is manipulated in Study 3 through trip purpose and measured in Study 4 with the personality trait of buying impulsivity. Both studies record consumers' entire in-store path-to-purchase by tracking their movements between categories and selection of individual items (e.g., Hui, Huang, et al. 2013). Overall, the purpose of these two studies is to understand when intrinsic messages can effectively stimulate unplanned purchases and whether the relative effectiveness of messages depends on consumers' dynamic shopping motivations.

### **STUDY 3: TRIP PURPOSE AND MANIPULATED SIGNAGE**

The goal of Study 3 is to test our hypotheses by investigating the causal effect of point-of-purchase messages on consumers' likelihood of purchasing an unplanned product during a shopping trip. To do so, we conducted an online shopping study to manipulate the type of message at product displays throughout a grocery store. In addition, to test whether shopping motivations moderate the effectiveness of point-of-

purchase messages, we manipulated whether the purpose of the shopping trip was to have fun or an obligation to work. Past research has shown that when an activity is construed as “fun” people are more likely to have intrinsic motivations, whereas when the same activity is construed as “work” people are more likely to have extrinsic motivations (Laran and Janiszewski 2011). Thus, when consumers construe a shopping trip as fun, we expect intrinsic messages to initially be more effective than extrinsic messages; however if consumers balance their motivations within a shopping trip, the effectiveness of intrinsic messages will decline as consumers spend more time shopping (Inzlicht et al. 2014). In contrast, we expect the opposite pattern when a trip is construed as work.

### **Study Design and Data Preparation**

Seventy-seven frequent grocery shoppers were recruited from a Qualtrics panel to participate in an online study for payment. Before beginning the shopping trip, participants were instructed to closely read one of two shopping scenarios that manipulated trip purpose (i.e., fun vs. work). In the fun condition, participants read that they were going on a shopping trip to have “fun” and they wanted to find products they like and find interesting. In contrast, in the work condition, participants read that they were going on a shopping trip as an obligation to “work” and they needed to find products that had low prices and served instrumental goals. In addition, all participants were given the same five item shopping list and asked to purchase the list items and any other non-list items with a \$50 budget. Just before going shopping, a six-item trip purpose manipulation check asked participants whether the following statements described the purpose of their shopping trip (1 = Disagree strongly; 5 = Agree strongly): “want to have fun,” “want to find items I like,” “need to be practical,” “need to get things done,” “need to save money,” and “need to find low prices.”



While shopping, the store presented product categories one at a time and participants were free to navigate between 28 pretested categories with six items each (e.g., salsa, paper towels, etc.; see Appendix G for details). The study design exposed all participants to all categories in the store at least once. This feature is meant to replicate the in-store experience of exposure to unplanned items during the procurement of planned categories (Inman et al. 2009). The survey recorded the time that the participants began shopping, moved between product categories, clicked on individual items, and ended the shopping trip. Trip progress was measured as the logged time at which each display was viewed during the shopping trip. Purchase (the dependent variable) was defined as when a participant selects at least one item from the category and the item stays in the participant's basket until checkout. We also included in our dataset a measure of category hedonicity taken from Wakefield and Inman (2003).

A key feature of this study was the display of point-of-purchase messages at product category displays. For each non-list category, signage was randomly displayed with a message that represented either intrinsic motivation (e.g., "Experience the Difference"), non-price extrinsic motivation (e.g., "Best Seller"), price motivation (e.g., "Ad Saver"), or no message. The no message condition was repeated three times (to increase its chance of presentation) making a total of nine options for each random draw and a one in three chance that a display featured a point-of-purchase message as opposed to no message. A pretest confirmed that the messages differed with respect to their perceived relationship with motivations for purchase (Appendix G shows all message types and pretest results). The intrinsic message was rated as more related to intrinsic motivations than the price message ( $p$ -value = .04). The non-price extrinsic message was rated as more extrinsically motivating than the price message ( $p$ -value < .001). Finally,

the price message was rated as more related to price motivations than either the intrinsic or non-price extrinsic message ( $p$ -value  $< .001$  for both tests).

Our final data set consisted of 1,386 non-list category visits which led to 404 purchases made by 70 participants (seven participants who did not follow instructions and purchased every non-list category were excluded). Our analysis is focused on the non-list items because they ostensibly were stimulated by exposure to in-store stimuli like unplanned purchases (Inman et al. 2009). Summary statistics and correlation table are in Appendix G.

## **Results**

The trip purpose manipulation check found the expected differences in initial shopping motivations between the fun and work conditions. An exploratory factor analysis revealed two factors with Eigenvalues greater than one that explain 75% of the variance in the items: the four extrinsic motivation items (need to be practical, need to get things done, need to save money, need to find low prices) and the two intrinsic motivation items (want to have fun, want to find items I like). We used the means of these two factors to compare the fun versus work conditions. As expected, participants in the fun condition as opposed to the work condition reported higher intrinsic shopping motivations ( $M_{fun} = 4.30$ ,  $M_{work} = 3.21$ ;  $t(1,69) = 4.55$ ,  $p < .0001$ ) and lower extrinsic shopping motivations ( $M_{fun} = 3.55$ ,  $M_{work} = 4.26$ ;  $t(1,69) = -3.07$ ,  $p < .01$ ).

We addressed our second and third research questions (i.e., when are consumers most likely to make an unplanned purchase from a display with an intrinsic message and what is the effectiveness of intrinsic messages relative to price and non-price extrinsic messages) with two different models that predicted the likelihood of a non-list purchase (Yes = 1; No = 0) using a logistic regression with the participant treated as a repeated

variable. All independent variables were mean-centered and Appendix G reports full model results.

The first model examined when consumers were most likely to make a purchase from a display with an intrinsic message. For displays with intrinsic messages, we regressed purchase of a non-list category on trip purpose (i.e., Fun = 1 and Work = -1), trip progress, the interaction between trip purpose and trip progress, and category hedonicity. The main effect of trip purpose was positive ( $\beta = 0.46$ ,  $Z(153) = 2.10$ ,  $p = .04$ ) and the main effect of trip progress was nonsignificant ( $\beta = -0.09$ ,  $Z(153) = -0.39$ ,  $p = .70$ ). As illustrated in Figure 6, there was a significant negative interaction between trip purpose and trip progress ( $\beta = -0.52$ ,  $Z(153) = -2.14$ ,  $p = .03$ ). Consistent with our first hypothesis, spotlight analyses showed that there was a significant negative effect of trip progress in the fun condition ( $\beta = -0.72$ ,  $Z(153) = -2.02$ ,  $p = .04$ ), indicating that as trip progress increased consumers on a shopping trip for fun were less likely to make an unplanned purchase from a display with an intrinsic message. However, in the work condition, there was a nonsignificant effect of trip progress ( $\beta = 0.33$ ,  $Z(153) = 1.04$ ,  $p = .30$ ). While directionally opposite the slope of the fun condition, we did not find significant evidence that consumers shopping for work were more likely to make an unplanned purchase from a display with an intrinsic message late as opposed to early in a shopping trip. Finally, the effect of product hedonicity was nonsignificant ( $\beta = -0.02$ ,  $Z(153) = -0.10$ ,  $p = .92$ ).

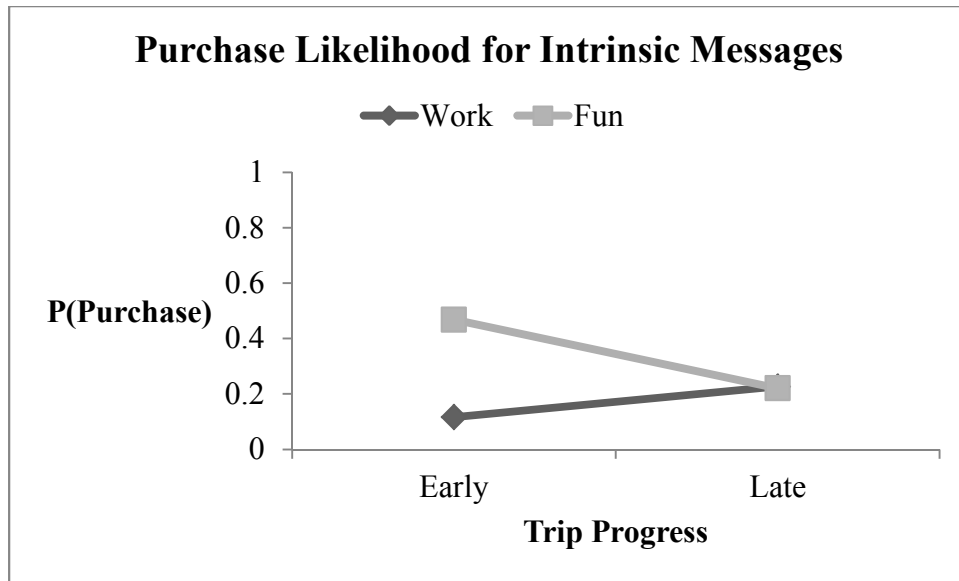


Figure 6: Essay 2, Study 3 – interaction between trip purpose and trip progress

The second model used the complete shopping dataset to test the relative effectiveness of intrinsic messages as compared to price and non-price extrinsic messages. The purchase of a non-list category was regressed on a set of contrast codes for message type, trip purpose (i.e., Fun = 1 and Work = -1), trip progress, product hedonicity, and all two-way and the three-way interactions between each contrast code, trip purpose, and trip progress. The three contrast codes tested the relative effectiveness of intrinsic messages against extrinsic messages (i.e., Intrinsic = 1, Price = -.5, Non-Price Extrinsic = -.5), whether there is a difference between price and non-price extrinsic messages (i.e., Non-Price Extrinsic = 1, Price = -1), and when intrinsic messages are predicted to lead to incremental sales over the absence of point-of-purchase signage (i.e., Intrinsic = 1, No Message = -1). The three contrasts were mean-centered and orthogonally coded.

Figure 7 illustrates the effect of the three-way interaction between message type, trip purpose, and trip progress on the predicted likelihood of an unplanned purchase. The

main effects and two-way interaction between trip purpose and trip progress were all nonsignificant (all  $p$ -values  $> .10$ ). The nonsignificant main effects and two-way interaction between trip purpose and trip progress were not surprising because we expected their impact on unplanned purchasing to depend on the message at a display. In addition, category hedonicity was a nonsignificant predictor of unplanned purchasing ( $\beta = -0.02$ ,  $Z(1386) = -0.53$ ,  $p = .59$ ).

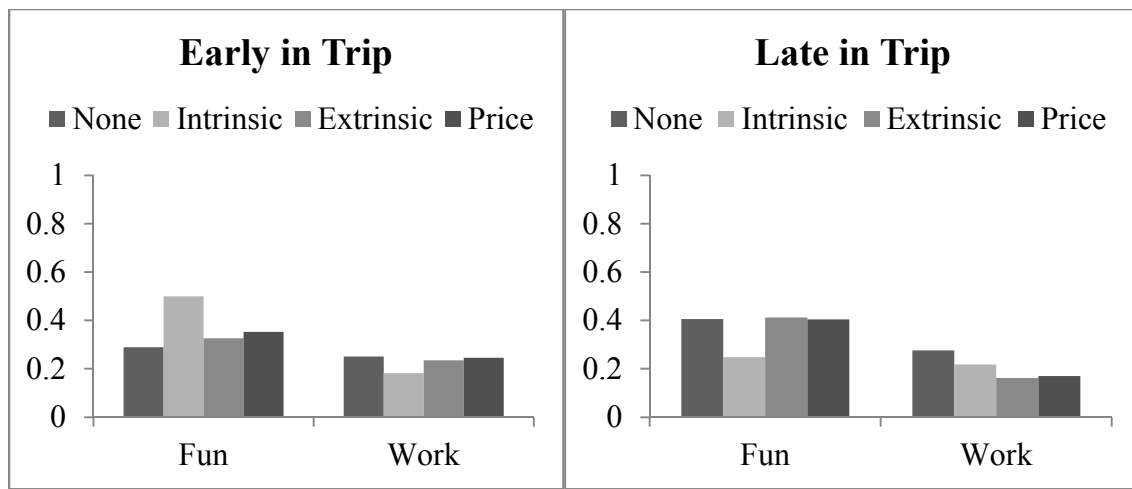


Figure 7: Essay 2, Study 3 – interaction of message type, trip purpose, and trip progress

In terms of the contrasts, the intrinsic versus extrinsic message contrast revealed a significant negative three-way interaction with trip purpose and trip progress ( $\beta = -0.57$ ,  $Z(1386) = -2.63$ ,  $p < .01$ ). As predicted, the relative effectiveness of intrinsic versus extrinsic messages (i.e., price and non-price) was moderated by the interaction between trip purpose and trip progress. Follow-up spotlight analyses reveal a significant negative interaction between trip progress and the intrinsic versus extrinsic contrast in the fun condition ( $\beta = -0.77$ ,  $Z(1386) = -2.72$ ,  $p < .01$ ) and a nonsignificant interaction between trip progress and the intrinsic versus extrinsic contrast in the work condition ( $\beta = 0.36$ ,

$Z(1386) = 1.13, p = .26$ ). Thus, the fun condition supported our prediction that the relative effect of intrinsic versus extrinsic messages would be moderated by trip progress. Within the fun condition, consumers were more likely to purchase from a display with an intrinsic message as opposed to an extrinsic message early in the shopping trip (one standard deviation below the mean) ( $\beta = 0.68, Z(1386) = 2.22, p = .03$ ) and less likely to purchase from a display with an intrinsic message as opposed to an extrinsic message late in the shopping trip (one standard deviation above the mean) ( $\beta = -0.75, Z(1386) = -2.39, p = .02$ ).

Regarding the difference between types of extrinsic messages, the non-price extrinsic message versus price message contrast tests revealed no significant effects. The main effect and interactions between the contrast, trip purpose, and trip progress were all nonsignificant (all  $p$ -values  $> 0.80$ ), indicating that non-price extrinsic messages had a relatively similar effect on unplanned purchases as price-based extrinsic messages.

The intrinsic versus no message contrast test revealed a moderately significant negative two-way interaction with trip progress ( $\beta = -0.33, Z(1386) = -1.93, p = .05$ ) and, as predicted, a significant negative three-way interaction with trip purpose and trip progress ( $\beta = -0.47, Z(1386) = -2.59, p < .01$ ). Several spotlight analyses were conducted to understand the predicted differences between the intrinsic as opposed to no message conditions. For the fun condition, there was a significant negative two-way interaction between trip progress and the intrinsic versus no message contrast ( $\beta = -0.89, Z(1386) = -2.59, p < .01$ ), indicating that intrinsic messages are more effective compared to no message for consumers on a shopping trip for fun early in the shopping trip as opposed to later in the trip. Within the fun condition, consumers were more likely to purchase from a display with an intrinsic message as opposed to no message early in the shopping trip (one standard deviation below the mean) ( $\beta = 0.91, Z(1386) = 2.84, p < .01$ ) and less

likely to purchase from a display with an intrinsic message as opposed to no message late in the shopping trip (one standard deviation above the mean) ( $\beta = -0.73$ ,  $Z(1386) = -2.43$ ,  $p < .01$ ). For the work condition, there was a nonsignificant two-way interaction between trip progress and the intrinsic versus no message contrast ( $\beta = 0.05$ ,  $Z(1386) = 0.21$ ,  $p = .84$ ), indicating that intrinsic messages were equally effective at stimulating purchases as no message throughout the shopping trip.

## **Discussion**

Overall, Study 3 offers empirical support for our first hypothesis: that the interaction between trip purpose and trip progress moderates the effectiveness of point-of-purchase messages at stimulating incremental unplanned purchases when consumers are shopping for fun. Based on the manipulation check and the relationship between trip purpose and shopping motivations (e.g., Babin et al. 1994; Kaltcheva and Weitz 2006), we believe that our results also provide evidence that consumers' motivations change within a shopping trip. We found that for consumers who construe a shopping trip as fun, intrinsic messages were more effective than extrinsically motivated messages or no message at all early in a shopping trip. However, we did not find any matching effects between messages and motivations for purchase in the shopping as work condition. This cannot be explained by a lack of unplanned purchasing by consumers in the work condition as trip purpose did not have a main effect on the likelihood of an unplanned purchase. We presume that consumers shopping for work may have been highly focused on tracking their budget which has been shown to mitigate the motivation balancing phenomenon (Suher and Hoyer 2016).

#### **STUDY 4: BUYING IMPULSIVITY AND MANIPULATED SIGNAGE**

The goal of Study 4 was to test whether consumers' response to point-of-purchase signage over the course of a shopping trip is moderated by their natural shopping motivations as measured by the personality trait of buying impulsivity. We expected that the likelihood that a consumer makes an unplanned purchase from a display will change dynamically with the interaction between buying impulsivity and trip progress. In particular, because buying impulsivity influences consumers' initial motivations for unplanned purchases (Suher and Hoyer 2016), intrinsic motivation messages should be most effective for high impulsivity consumers early in their shopping trips and low impulsivity consumers late in their shopping trips. Similarly, intrinsic messages should be relatively more effective than price and non-price extrinsic messages when consumers are predicted to have intrinsic shopping motivations. To test these patterns, we employed an online shopping study similar to Study 3 to manipulate the type of message at a product display and measure consumers' responsiveness to messages throughout a shopping trip.

In addition to investigating the moderating effect of buying impulsivity on consumers' response to point-of-purchase signage, we pretested and utilized different types of intrinsic, non-price extrinsic, and price messages as compared to Study 3 to address issues of internal and external validity. The purpose of multiple messages for each type of motivation is to show that the effects of different message types are not exclusive to individual phrases. In addition, the internal validity of our distinction between message types is supported by a second message pretest and by using signage that is more visually uniform (i.e., all messages had the same color scheme and font). From an external validity point-of-view, employing new types of signage increases the generalizability of our findings as some retailers may use several different messages to promote their products.



## **Study Design and Data Preparation**

Twenty-six frequent grocery shoppers were recruited with Prolific AC to participate in an online study for payment. The relatively smaller number of recruited participants as compared to Study 3 was due to a single condition design; however, the repeated nature of the shopping decisions ensured that we had sufficient observations to test our hypotheses. The methodology of this study was similar to Study 3 except we did not include a trip purpose manipulation. All participants were given the same instructions, including a five item shopping list and a \$50 budget, and then were free to navigate between 18 pretested categories with three items each (e.g., salsa, paper towels, etc.; see Appendix H for details). As in Study 3, the survey recorded the time that the participants began shopping, moved between product categories, clicked on individual items, and ended the shopping trip. Trip progress was measured as the logged time at which each display was viewed within the entire shopping trip and purchase was defined as when a participant selects one or more items from a category. Finally, after completing the shopping portion of the study, an exit survey measured participants' buying impulsivity (nine-item scale; Rook and Fisher 1995). We also included in our dataset a measure of category hedonicity taken from Wakefield and Inman (2003).

As in Study 3, we manipulated the display of point-of-purchase messages at product category displays. For each non-list category, signage was randomly displayed with a message that represented either intrinsic motivation (e.g., "Experience the Difference"), non-price extrinsic motivation (e.g., "Reminder of Forgotten Need"), price motivation (e.g., "Low Price"), or no message. The no message condition was repeated four times (to increase its chance of selection) making a total of 10 options for each random draw. After an initial selection from the dozens of messages found in our field studies, six different messages were pretested for their relationships to consumers'

motivations for purchase (Appendix H shows all message types and pretest results). The intrinsic messages were rated as more related to intrinsic motivations than either the non-price extrinsic messages or the price messages ( $p$ -value  $< .0001$  for both tests). The non-price extrinsic messages were rated as more extrinsically motivating ( $p$ -value  $< .0001$ ) and similarly price-related as the intrinsic messages ( $p$ -value = .46). Finally, the price messages were rated as more related to price motivations than either the intrinsic or non-price extrinsic messages ( $p$ -value  $< .0001$  for both tests).

Our final data set consisted of 552 non-list product display visits which led to 111 purchases made by the 26 participants. As in Study 3, we focused our analysis on the non-list items. Summary statistics and correlation table are in Appendix H.

## **Results**

We examined the output of two different models to test our hypotheses addressing our second and third research questions: when are consumers most likely to make an unplanned purchase from a display with an intrinsic message and what is the effectiveness of intrinsic messages relative to price and non-price extrinsic messages. Both models predicted the likelihood of a non-list purchase (Yes = 1; No = 0) using a logistic regression with the participant treated as a repeated variable. All independent variables were mean-centered and Appendix H reports full results for both models.

The first model examines when consumers were most likely to make a purchase from a display with an intrinsic message. For displays with intrinsic messages, we regressed purchase of a non-list category on buying impulsivity, trip progress, the interaction between buying impulsivity and trip progress, and category hedonicity. The main effect of buying impulsivity was nonsignificant ( $\beta = 0.49$ ,  $Z(105) = 1.31$ ,  $p = .19$ ) and the main effect of trip progress was positive ( $\beta = 0.35$ ,  $Z(105) = 2.04$ ,  $p = .04$ ). As

illustrated in Figure 8, there was a significant negative interaction between buying impulsivity and trip progress ( $\beta = -1.20$ ,  $Z(105) = -3.24$ ,  $p < .01$ ). Consistent with our third and fourth hypotheses, buying impulsivity moderated the effect of trip progress on unplanned purchasing from displays with intrinsic messages. Spotlight analyses showed that at one standard deviation above the mean for buying impulsivity (i.e., high impulsivity), there was a significant negative effect of trip progress ( $\beta = -0.73$ ,  $Z(105) = -2.81$ ,  $p < .01$ ). However, at one standard deviation below the mean for buying impulsivity (i.e., low impulsivity), there was a significant positive effect of trip progress ( $\beta = 1.43$ ,  $Z(105) = 3.10$ ,  $p < .01$ ). Taken together, these tests provide strong support for the prediction that buying impulsivity moderates the impact of trip progress on the likelihood that a consumer makes an unplanned purchase from a display with an intrinsic message. Finally, the effect of product hedonicity was nonsignificant ( $\beta = -0.14$ ,  $Z(105) = -1.20$ ,  $p = .23$ ).

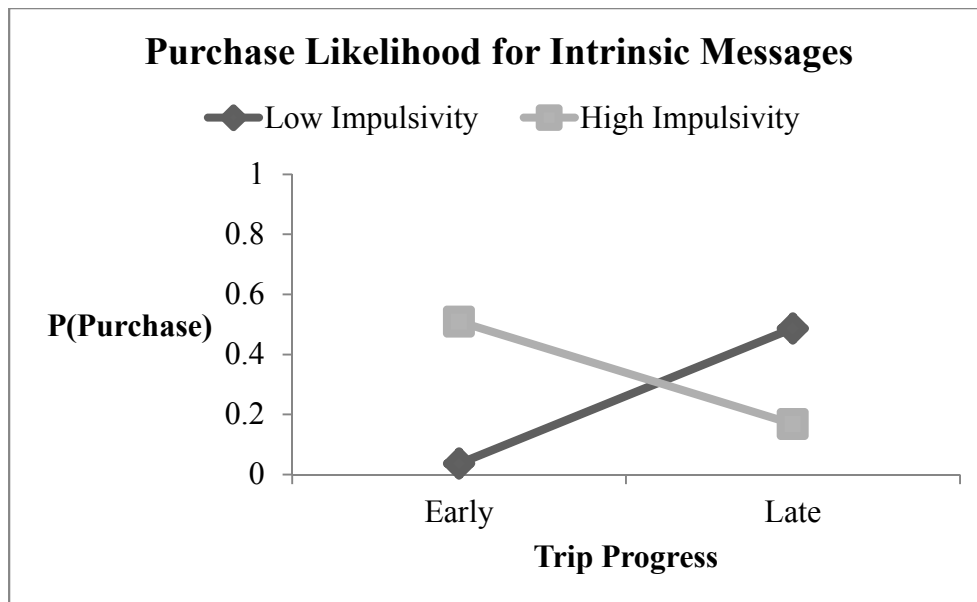


Figure 8: Essay 2, Study 4 – interaction between impulsivity and trip progress

The second model used the complete shopping dataset to test the relative effectiveness of intrinsic messages as compared to price and non-price extrinsic messages. We regressed purchase of a non-list category on a set of contrast codes for message type, buying impulsivity, trip progress, product hedonicity, and all two-way and the three-way interactions between each contrast code, buying impulsivity, and trip progress. As in Study 3, the three contrast codes tested the relative effectiveness of intrinsic messages against extrinsic messages (i.e., Intrinsic = 1, Price = -.5, Non-Price Extrinsic = -.5), whether there is a difference between price and non-price extrinsic messages (i.e., Non-Price Extrinsic = 1, Price = -1), and when intrinsic messages are predicted to lead to incremental sales over the absence of point-of-purchase signage (i.e., Intrinsic = 1, No Message = -1). The three contrasts were mean-centered and orthogonally coded.

Figure 9 illustrates the effect of the three-way interaction between message type, buying impulsivity, and trip progress on the predicted likelihood of an unplanned purchase. The main effects of buying impulsivity and trip progress were nonsignificant. However, the interaction between buying impulsivity and trip progress was negative ( $\beta = -0.28$ ,  $Z(552) = -2.47$ ,  $p = .01$ ), indicating an increased likelihood of an unplanned purchase for participants with higher reported impulsivity early in their shopping trips. Finally, category hedonicity was a nonsignificant predictor of unplanned purchasing ( $\beta = 0.04$ ,  $Z(552) = 0.60$ ,  $p = .55$ ).

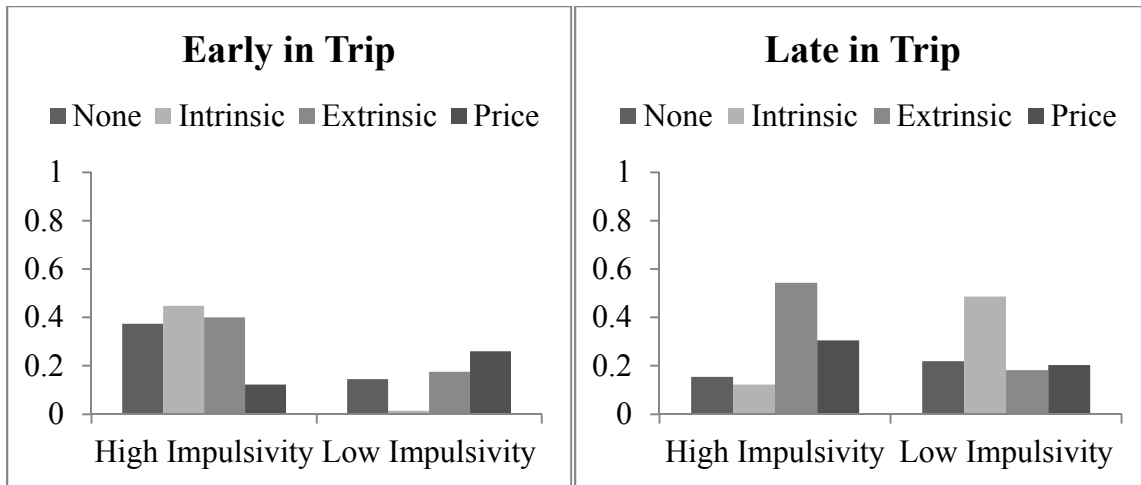


Figure 9: Essay 2, Study 4 – interaction of message type, impulsivity, and trip progress

In terms of the contrasts, the intrinsic versus extrinsic message contrast revealed a significant negative three-way interaction with impulsivity and trip progress ( $\beta = -1.35$ ,  $Z(552) = -3.74$ ,  $p < .001$ ). As predicted, the relative effectiveness of intrinsic versus extrinsic messages (i.e., price and non-price) was moderated by the interaction between buying impulsivity and trip progress. Relative to extrinsic messages, intrinsic messages were more likely to lead to unplanned purchases when consumers are predicted to have strong intrinsic motivations: high impulsivity consumers early in their shopping trip and low impulsivity consumers late in their shopping trip. Follow-up spotlight analyses reveal a significant negative interaction between trip progress and the intrinsic versus extrinsic contrast at one standard deviation above the mean for buying impulsivity (i.e., high impulsivity) ( $\beta = -1.06$ ,  $Z(552) = -3.30$ ,  $p < .01$ ) and a significant positive interaction between trip progress and the intrinsic versus extrinsic contrast at one standard deviation below the mean for buying impulsivity (i.e., low impulsivity) ( $\beta = 1.38$ ,  $Z(552) = 3.07$ ,  $p < .01$ ).

Within the high impulsivity spotlight model, consumers were more likely to purchase from a display with an intrinsic message as opposed to an extrinsic message early in the shopping trip (one standard deviation below the mean) ( $\beta = 0.99$ ,  $Z(552) = 1.96$ ,  $p = .05$ ) and less likely to purchase from a display with an intrinsic message as opposed to an extrinsic message late in the shopping trip (one standard deviation above the mean) ( $\beta = -1.38$ ,  $Z(552) = -3.90$ ,  $p < .0001$ ). The opposite pattern was found in the low impulsivity spotlight model, consumers were less likely to purchase from a display with an intrinsic message as opposed to an extrinsic message early in the shopping trip (one standard deviation below the mean) ( $\beta = -2.12$ ,  $Z(552) = -3.08$ ,  $p < .01$ ) and moderately more likely to purchase from a display with an intrinsic message as opposed to an extrinsic message late in the shopping trip (one standard deviation above the mean) ( $\beta = 0.96$ ,  $Z(552) = 1.69$ ,  $p = .09$ ).

The extrinsic versus price contrast test revealed a significant positive main effect ( $\beta = 0.46$ ,  $Z(552) = 2.07$ ,  $p = .04$ ) and a significant positive two-way interaction with buying impulsivity ( $\beta = 0.74$ ,  $Z(552) = 2.18$ ,  $p = .03$ ). Overall, consumers were more likely to make an unplanned purchase from a display with an extrinsic message as opposed to a price message and the relative effectiveness of extrinsic versus price messages is greater for high impulsivity as opposed to low impulsivity consumers. For low impulsivity consumers (one standard deviation below the mean), there is a nonsignificant difference between extrinsic and price messages ( $\beta = -0.21$ ,  $Z(552) = -0.65$ ,  $p = .51$ ). However, at one standard deviation above the mean for impulsivity (i.e., high impulsivity), extrinsic as opposed to price messages are more likely to lead to an unplanned purchase ( $\beta = 1.12$ ,  $Z(552) = 2.64$ ,  $p < .01$ ).

The intrinsic versus no message contrast test revealed a moderately significant positive two-way interaction with impulsivity ( $\beta = 0.29$ ,  $Z(552) = 1.77$ ,  $p = .08$ ) and, as

predicted, a significant negative three-way interaction with impulsivity and trip progress ( $\beta = -0.83$ ,  $Z(552) = -2.22$ ,  $p = .03$ ). Several spotlight analyses were conducted to understand the predicted differences between the intrinsic as opposed to no message conditions. For high impulsivity consumers (one standard deviation above the mean), the two-way interaction between trip progress and the intrinsic versus no message contrast was nonsignificant ( $\beta = -0.31$ ,  $Z(552) = -0.87$ ,  $p = .39$ ), indicating that intrinsic messages are equally effective compared to no message for high impulsivity consumers throughout a shopping trip. For low impulsivity consumers (one standard deviation below the mean), there was a significant positive two-way interaction between trip progress and the intrinsic versus no message contrast ( $\beta = 0.29$ ,  $Z(552) = 2.39$ ,  $p = .02$ ), indicating that intrinsic messages are more effective compared to no message later as opposed to earlier in a trip. Low impulsivity consumers were less likely to purchase from a display with an intrinsic message as opposed to no message early in the shopping trip (one standard deviation below the mean) ( $\beta = -1.75$ ,  $Z(1386) = -2.65$ ,  $p < .01$ ) and equally likely to purchase from a display with an intrinsic message as opposed to no message late in the shopping trip (one standard deviation above the mean) ( $\beta = -0.91$ ,  $Z(1386) = 1.36$ ,  $p = .17$ ).

## **Discussion**

Overall, this study provided evidence that consumers' response to point-of-purchase messages is moderated by their dynamic shopping motivations. As predicted, we found that high impulsivity consumers were most likely to purchase from a display with an intrinsic message early in a shopping trip whereas low impulsivity consumers were most likely to purchase from a display with an intrinsic message late in a shopping trip. When looking at all displays, intrinsic messages were more effective than price and

non-price extrinsic messages when consumers were predicted to have intrinsic shopping motivations (i.e., high impulsivity consumers early in their shopping trip and low impulsivity consumers late in their shopping trip). As compared to no message, intrinsic messages were equally effective for high impulsivity consumers throughout a shopping trip and more effective for low impulsivity consumers late as opposed to early in a shopping trip. Extrinsic messages were overall more effective than price messages, especially when consumers were predicted to have intrinsic shopping motivations.

We were surprised to find that high impulsivity consumers did not respond differently to intrinsic motivation messages and no message. One explanation for this pattern is that high impulsivity consumers are equally likely to act on spontaneous internal urges to purchase (Rook 1987) as they are to respond to intrinsic motivation messages. Also, in contrast to Study 3, we note that extrinsic motivation messages appeared to be a highly effective form of stimulating unplanned purchase. While non-price extrinsic messages were not rated higher than intrinsic or price messages on any dimension in the pretest, they had a similar pattern to price messages and even were more effective than price messages for high impulsivity consumers.

## **GENERAL DISCUSSION**

Perhaps because price cuts and coupons are the most common form of sales promotions, most research has assumed that economic incentives are necessary to stimulate incremental sales. Consequently, although a few studies have investigated the usage of non-economic retail promotions such as digital displays and point-of-purchase signage, no studies have evaluated the relationship between different types of non-price in-store marketing and consumers' dynamic shopping motivations. The first purpose of this research was therefore to distinguish between different types of point-of-purchase



messages (i.e., intrinsic motivation, non-price extrinsic motivation, and price-based motivation) and establish a relationship between messages and consumers' shopping motivations. The second purpose was to determine when messages that appeal to consumers' intrinsic shopping motivations would be most effective within a shopping trip. By studying how and when point-of-purchase signage impacts unplanned purchasing, this research has implications for how to improve the effectiveness of in-store marketing as it increases its presence in the marketing mix. Before we detail these implications, the three conclusions of this research are as follows:

1. Retailers and manufacturers frequently use point-of-purchase messages that are naturally related to consumers' intrinsic shopping motivations.
2. Displays with intrinsic messages are most likely to stimulate unplanned purchases when placed early in the shopping trip of high impulsivity consumers and consumers shopping for fun or late in the shopping trip of low impulsivity consumers.
3. Intrinsic messages are significantly more effective than extrinsic messages at increasing the likelihood of an unplanned purchase when targeted to consumers' motivations.

### **Theoretical and Managerial Implications**

The following section discusses the implications of the above conclusions in relation to our research questions in the introduction. Our first two questions concerned mainly academic issues (i.e., the relationship between messages and shopping motivations and consumers' response to intrinsic messages) and the third question was the most practically relevant (i.e., the relative effectiveness of message types). Thus, in

reviewing our results, we present mostly theoretical implications before discussing the managerial implications of this research.

### ***Messages And Shopping Motivations***

Our first research question was whether intrinsic motivation point-of-purchase messages (e.g., “Experience the Difference”) were positively related to consumers’ intrinsic motivations for purchase. In support of a relationship between messages and shopping motivations, we found consumers were more likely to have intrinsic motivations when making a purchase from a display with an intrinsic message and more likely to have price motivations when making a purchase from a display with an extrinsic message. The importance of this finding is underscored by our first study, which was a field survey of messages at promotional displays. In a longitudinal sample of regional grocery stores, retailers frequently displayed non-economic point-of-purchase messages at promotional in-store displays. In combination, Study 1 and Study 2 provide strong evidence that, in contrast to the majority of past literature on retail promotion, in-store marketing is about more than price or other external incentives such as free gifts.

The relationship between in-store signage and consumers’ non-economic shopping motivations has significant implications for understanding the goals of sales promotions. In particular, point-of-purchase messages can contribute to shaping the retail customer experience (Verhoef et al. 2009), which is one of the Marketing Science Institute’s top research priorities (MSI 2014). As with other environmental factors, point-of-purchase messages likely contribute to the attractiveness of retail environments, such as through the perceived pleasantness of an environment (Kaltcheva and Weitz 2006). In addition, the use of different types of in-store messages might be a tactic for retailers to manage their price image (Hamilton and Chernev 2013). For example, Whole Foods

displays price-related in-store messages as well as non-economic messages to combat its reputation as an expensive retailer (Peterson 2015).

At the individual purchase level, the diversity of in-store messages suggests that in-store marketing can be used as more than an attention-grabbing tactic. The common explanation for the positive effect of promotional displays and feature advertisements on brand choice is that in-store marketing increases the likelihood that a product enters a consumer's consideration set (Zhang 2006). Similar logic also explains the effectiveness of increasing a product's shelf space (Chandon et al. 2009; Dreze et al. 1994). In contrast, the support for our "message-to-motivation" matching hypotheses suggests that in-store marketing can create positive "top-down" product evaluations through the fit principle in addition to the "bottom-up" attention-grabbing effect suggested in past research. This supports the conclusion that in-store marketing plays different functions during the point-of-purchase decision making process (Russo and Leclerc 1994).

### ***Consumer Response to Intrinsic Messages***

Our second research question concerned which between and within shopper factors are in operation when a consumer is most likely to make an unplanned purchase from a display with an intrinsic motivation message. In Study 3, as predicted by our message-to-motivation matching theory, we found that shopping trip purpose (i.e., shopping to have fun vs. shopping as an obligation to work) moderated the effect of trip progress on the likelihood that a consumer makes an unplanned purchase from a display with an intrinsic motivation message. In particular, consumers shopping for fun were more responsive to intrinsic messages early in their shopping trip as opposed to later; however, consumers shopping for work were equally responsive to intrinsic messages throughout a shopping trip. Study 4 provided strong evidence that dynamic shopping

motivations moderate consumers' responsiveness to intrinsic messages. High impulsivity consumers, as measured by the personality trait of buying impulsivity, were more likely to make an unplanned purchase from a display with an intrinsic message early as opposed to late in their shopping trips. Low impulsivity consumers had the exact opposite pattern: they were more likely to make an unplanned purchase from a display with an intrinsic message late as opposed to early in their shopping trips. Taken together, Studies 3 and 4 provided evidence that the effectiveness of intrinsic motivation messages is dependent on consumers' initial shopping motivations and the stage in their shopping trip.

There are two major theoretical implications of consumers' dynamic responsiveness to intrinsic messages. First, the effects of shopping trip purpose and the personality trait of buying impulsivity suggests that consumers' shopping motivations change within the in-store path-to-purchase. Past research has treated shopping motivations as a static pre-shopping state (e.g., Bell et al. 2011) or a trip-level variable (e.g., Babin et al. 1994). Our research shows that consumers may have opposite shopping motivations within the same shopping trip which explains why past research has found positive correlations between trip-level intrinsic and extrinsic shopping motivations despite their conceptual dissimilarity (Babin et al. 1994). In addition, the moderating effect of motivations on the effectiveness of intrinsic messages sheds light on the nonsignificant effects of non-economic in-store marketing at the total store level (e.g., Roggeveen et al. 2015). When the effect of in-store marketing is evaluated in aggregate, implementing point-of-purchase intrinsic messages at the expense of extrinsic messages may not increase sales because even highly intrinsically motivated customers respond positively to extrinsic messages at times. This would be especially pronounced if a store catered to customers who were more task-focused and treated shopping as an obligation to work as opposed to an opportunity to have fun (Kaltcheva and Weitz 2006). Thus,

when deciding to implement non-price in-store marketing, managers will need to evaluate the trade-off of losing the more uniform effectiveness of price cuts against the possible benefits of switching to non-economic in-store marketing, such as increased margins.

Second, consumers' dynamic responses to intrinsic messages provide indirect support for the "in-store motivation balancing" phenomenon without relying on consumers' self-reported motivations (Suher and Hoyer 2016). As discussed in the hypothesis development section, the in-store motivation balancing principle predicts that consumers' motivations for unplanned purchases change within a shopping trip in opposition to their initial shopping motivations. This theory is unique from past studies of sequential choice because it proposes that over a sequence of shopping decisions consumers balance their motivations or reasons for purchase independently of their choice of different product types. In fact, past research has found that consumers do not balance the type of product chosen during a shopping trip (e.g., hedonic vs. utilitarian products; Dhar and Simonson 1999; Hui et al. 2009). Consistent with this finding, we did not find a significant effect of product category hedonicity on the likelihood that a consumer purchases from a display with an intrinsic motivation message. While our reported models only include category hedonicity as a control variable, adding it to the interaction with trip purpose (i.e., Study 3) or buying impulsivity (i.e., Study 4) and trip progress leads to nonsignificant results for all terms that include category hedonicity. Thus, while past research has implicated category type in the effect of promotions on brand choice (e.g., Chandon et al. 2000), we find that the dynamics of the decision to make an incremental unplanned purchase are independent of product category hedonicity.

### ***Effectiveness of Point-Of-Purchase Messages***

Our third research question concerns how the effectiveness of intrinsic motivation messages compares to other forms of point-of-purchase messages (i.e., price and non-price extrinsic messages). Study 3 demonstrated that intrinsic messages are more effective than extrinsic messages or no message for consumers on a shopping trip for fun early in a shopping trip as opposed to later. In contrast, consumers' shopping for work did not show any differences between types of point-of-purchase messages. Supporting the relative effectiveness of intrinsic messages as opposed to extrinsic messages, Study 4 demonstrated that the personality trait of buying impulsivity moderates the effectiveness of message types. Intrinsic messages were more effective than price and non-price extrinsic messages when consumers were predicted to have intrinsic shopping motivations (i.e., high impulsivity consumers early in their shopping trip and low impulsivity consumers late in their shopping trip). As compared to no message, intrinsic messages were equally effective for high impulsivity consumers throughout a shopping trip and more effective for low impulsivity consumers late as opposed to early in a shopping trip. Overall, Studies 3 and 4 suggest that in addition to impacting consumers' direct responsiveness to intrinsic messages, shopping motivations also moderate their relative effectiveness as compared to other messages at stimulating incremental unplanned purchase.

The relative effectiveness of intrinsic as opposed to price messages further demonstrates that consumers' in-store decision are made for more than price reasons alone. Our results support the notion that perceived value is determined by both product benefits and economic considerations (e.g., Chandon et al. 2000). While past retail promotion studies have demonstrated that price is a powerful common denominator in the value equation, our findings contribute evidence that highlighting product benefits can

have a positive effect on unplanned purchasing. We also note that, in general, we did not find significant differences between non-price extrinsic motivation signage and price signage. This finding is of interest to managers who may want to reduce the usage of price signage without decreasing the appeal of their store to task-oriented consumers (Kaltcheva and Weitz 2006). For example, non-price messages, such as “Best Seller” and “Forgotten Need,” may be used in lieu of signal-only price messages to stimulate unplanned purchases (Inman, McAlister, and Hoyer 1990). When the effect of non-price extrinsic and price-related messages differed (i.e., for high impulsivity consumers in Study 4), the non-price messages were more effective at stimulating incremental unplanned purchases.

An important practical implication of our research is that we investigate the incidence of incremental unplanned purchases unconditional on purchase. Whereas most retail promotion literature is at the brand choice level, we find that point-of-purchase messages can stimulate purchases at the category level without a price cut. To increase the effectiveness of in-store marketing, our results suggest that marketers should utilize a mix of intrinsic and extrinsic messages to match the diversity and dynamics of consumers’ shopping motivations. Because our field survey (Study 1) provides evidence that some retailers use a mix of message types, managers should strategically place point-of-purchase messages at the store entrance and exit because this is where consumers are predicted to have the most polarized reactions to in-store marketing. For example, it would behoove a shopper marketing manager to feature intrinsic motivation messages at the store entrance in addition to sale items and to use signage to remind customers of forgotten needs at checkout.

Finally, as discussed in the introduction, shopper marketing managers with the ability to target promotions within a shopping trip can use our findings to maximize the

effectiveness of in-store marketing. Several new technologies, such as mobile shopping applications (Hui, Inman, et al. 2013) and on demand coupon printing (Danaher et al. 2015) allow a marketer to decide to who and when a message is delivered to a customer. The guidelines from our research are that shoppers with a high initial likelihood of intrinsic shopping motivations (e.g., shopping for fun or high impulsivity) should receive intrinsic messages early in a shopping trip and extrinsic messages later in their trip. The exact opposite pattern is recommended for shoppers with a high initial likelihood of extrinsic shopping motivations (e.g., shopping for work or low impulsivity). In addition to leveraging trip purpose and individual differences, there are other means to direct in-store marketing to consumers' specific shopping motivations. For example, past research suggests that consumers' motivations can be strategically targeted by increasing the use of intrinsic messages later in the day (Burke 2009), when a store features pleasant music (Kaltcheva and Weitz 2006), and for categories that are typically purchased in an opportunistic shopping state (Bucklin and Lattin 1991). Thus, retailers can maximize the effectiveness of their in-store marketing by supplementing their investments in new retail technology with an understanding of the factors that determine shopping motivations.

### **Limitations and Future Research**

Advancements in retail technology, combined with the lack of syndicated data on non-price promotional tactics, create several opportunities for future research on in-store marketing. First, our research used controlled shopping experiments to evaluate the effectiveness of point-of-purchase signage at stimulating incremental unplanned purchases. The moderating effect of shopping motivations on consumers' responsiveness to in-store marketing should be further evaluated with additional field studies and experiments. In particular, it would be relevant to compare non-economic tactics to



significant price cuts or other economic incentives in the field. Other message types and forms of non-economic in-store marketing could be evaluated as well. For instance, four of the top 20 most frequently used promotional messages in our field survey were related to health and sustainability, such as “organic” and “local.”

In addition to new message types, future research should look at other forms of in-store communication such as with mobile applications (e.g., Hui, Inman, et al. 2013) and digital signage (e.g., Roggeveen et al. 2015). While we expect the performance of different types of in-store marketing to converge on the same differences between intrinsic and extrinsic motivations, there may be other factors that moderate consumers’ in-store shopping motivations. In particular, it would be useful for future research to investigate measures of dynamic motivations that are available with existing retailer data, such as store type or frequent shopper data. We were able to measure trip purpose and buying impulsivity with a few short questions, however it may not always be feasible to communicate with consumers before providing a promotional message.

Finally, future research can consider other methods of modeling the effect of non-economic promotional tactics on the in-store path-to-purchase. Past research describes two ways in which in-store marketing might stimulate incremental unplanned purchases (Inman et al. 2009). First, it may increase the likelihood that a consumer considers a product category. Second, it can increase the likelihood that a product consideration converts to purchase. Creating an integrated model of this two-step process would provide insights into the function of in-store marketing at different points in the “first moment of truth,” or shopping behavior at the point-of-purchase (Hui, Huang, et al. 2013). While we track the time spent shopping each category and the moment of product selection, more accurate measures of consumer attention, such as eye-tracking technology (e.g., Chandon et al. 2009), might help to identify a behavioral model that distinguishes

between the consideration and the conversion to purchase stages of unplanned purchasing.

## Appendices

### APPENDIX A: ESSAY 1 SUMMARY STATISTICS

Summary Statistics				
Study 1: In-Store Video Tracking				
Variable	Mean	Standard Deviation	Min	Max
Intrinsic Motivation	0.29	0.45	0.00	1.00
Extrinsic Motivation	0.77	0.42	0.00	1.00
Buying Impulsivity	2.45	0.75	1.00	4.22
Trip Progress (minutes)	10.34	8.80	0.00	40.80
Shopping Budget (dollars)	46.50	40.84	5.00	300.00
Category Hedonicity	3.93	0.98	1.43	6.10
Study 2: Online Shopping with Manipulated Budget				
Variable	Mean	Standard Deviation	Min	Max
Intrinsic Motivation	0.56	0.50	0.00	1.00
Extrinsic Motivation	0.45	0.50	0.00	1.00
Buying Impulsivity	2.70	0.71	1.22	4.56
Trip Progress (relative category order)	0.52	0.31	0.05	1.00
Shopping Budget (High vs. Low)	0.37	0.93	-1.00	1.00
Category Hedonicity	4.21	1.31	1.78	5.96
Study 3: Online Shopping with Manipulated Budget Focus				
Variable	Mean	Standard Deviation	Min	Max
Intrinsic Motivation	5.65	1.31	1.00	7.00
Extrinsic Motivation	3.50	1.30	1.00	7.00
Intrinsic Minus Extrinsic Motivation	2.15	1.97	-5.00	6.00
Buying Impulsivity	2.27	0.82	1.00	4.20
Trip Progress (seconds)	169.08	127.43	7.54	710.16
Budget Focus (No vs. Yes)	0.09	1.00	-1.00	1.00
Category Hedonicity	4.30	1.28	1.78	5.96

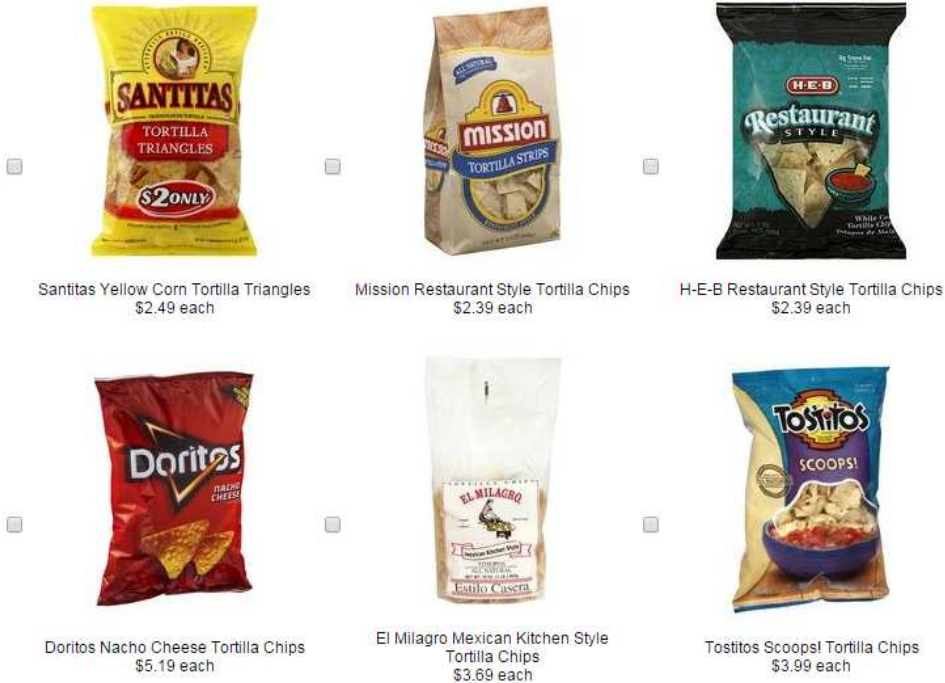
Correlation Tables							
Study 1: In-Store Video Tracking							
Pearson Correlation Coefficients							
	Intrinsic Motivation	Extrinsic Motivation	Buying Impulsivity	Trip Progress (minutes)	Trip Budget (dollars)	Category Hedonicity	
Intrinsic Motivation	1.00	-0.82	0.12	-0.04	0.11	0.13	
Extrinsic Motivation	-0.82	1.00	-0.15	0.00	-0.15	-0.10	
Buying Impulsivity	0.12	-0.15	1.00	0.06	0.18	-0.07	
Trip Progress (minutes)	-0.04	0.00	0.06	1.00	0.28	0.06	
Trip Budget (dollars)	0.11	-0.15	0.18	0.28	1.00	0.01	
Category Hedonicity	0.13	-0.10	-0.07	0.06	0.01	1.00	
Study 2: Online Shopping with Manipulated Budget							
Pearson Correlation Coefficients							
	Intrinsic Motivation	Extrinsic Motivation	Buying Impulsivity	Trip Progress (minutes)	Trip Budget (Low vs. High)	Category Hedonicity	
Intrinsic Motivation	1.00	-0.90	0.00	0.01	0.01	0.38	
Extrinsic Motivation	-0.90	1.00	-0.03	0.02	0.07	-0.34	
Buying Impulsivity	0.00	-0.03	1.00	0.07	-0.27	-0.02	
Trip Progress (minutes)	0.01	0.02	0.07	1.00	0.07	-0.21	
Trip Budget (Low vs. High)	0.01	0.07	-0.27	0.07	1.00	-0.12	
Category Hedonicity	0.38	-0.34	-0.02	-0.21	-0.12	1.00	
Study 3: Online Shopping with Manipulated Budget Focus							
Pearson Correlation Coefficients							
	Intrinsic Motivation	Extrinsic Motivation	Intrinsic Minus Extrinsic Motivation	Buying Impulsivity	Trip Progress (seconds)	Budget Focus (No vs. Yes)	Category Hedonicity
Intrinsic Motivation	1.00	-0.13	0.75	0.04	0.08	-0.07	0.33
Extrinsic Motivation	-0.13	1.00	-0.75	0.08	-0.21	-0.04	-0.27
Intrinsic Minus Extrinsic Motivation	0.75	-0.75	1.00	-0.03	0.19	-0.02	0.40
Buying Impulsivity	0.04	0.08	-0.03	1.00	-0.11	0.14	-0.03
Trip Progress (seconds)	0.08	-0.21	0.19	-0.11	1.00	0.04	0.07
Budget Focus (No vs. Yes)	-0.07	-0.04	-0.02	0.14	0.04	1.00	-0.01
Category Hedonicity	0.33	-0.27	0.40	-0.03	0.07	-0.01	1.00

## APPENDIX B: ESSAY 1 MODEL RESULTS

Results Summary						
Study 1: In-Store Video Tracking						
(DV is Intrinsic Motivation = 1; Extrinsic Motivation = 0)						
Variable	Parameter Estimate	Standard Error	95% Confidence Limits		Z	Pr >  Z
Intercept	-0.9598	0.1351	-1.2245	-0.695	-7.11	<.0001
Impulsivity	0.4352	0.1949	0.0532	0.8171	2.23	0.0256
Trip Progress	-0.0195	0.0151	-0.0492	0.0101	-1.29	0.1971
Budget	0.0072	0.0046	-0.0018	0.0162	1.58	0.1146
Impulsivity * Trip Progress	-0.051	0.0276	-0.1052	0.0031	-1.85	0.0648
Impulsivity * Budget	0.0045	0.0077	-0.0105	0.0196	0.59	0.557
Trip Progress * Budget	0.0002	0.0004	-0.0007	0.001	0.37	0.71
Impulsivity * Trip Progress * Budget	-0.0016	0.0007	-0.0029	-0.0002	-2.27	0.0231
Category Hedonicity	0.2992	0.1489	0.0074	0.591	2.01	0.0445
Study 2: Online Shopping with Manipulated Budget						
(DV: Intrinsic Motivation = 1; Extrinsic Motivation = 0)						
Variable	Parameter Estimate	Standard Error	95% Confidence Limits		Z	Pr >  Z
Intercept	0.0016	0.2311	-0.4513	0.4545	0.01	0.9944
Impulsivity	0.0126	0.2738	-0.524	0.5493	0.05	0.9632
Trip Progress	0.6161	0.533	-0.4287	1.6608	1.16	0.2478
Budget	0.2161	0.2323	-0.2392	0.6715	0.93	0.3522
Impulsivity * Trip Progress	-1.8795	0.7304	-3.311	-0.448	-2.57	0.0101
Impulsivity * Budget	-0.1934	0.2746	-0.7317	0.3448	-0.7	0.4812
Trip Progress * Budget	0.435	0.5165	-0.5774	1.4473	0.84	0.3997
Impulsivity * Trip Progress * Budget	-1.8477	0.7357	-3.2897	-0.4057	-2.51	0.012
Category Hedonicity	0.7065	0.1252	0.4612	0.9519	5.64	<.0001
Study 3: Online Shopping with Manipulated Budget Focus						
(DV: [Avg(Intrinsic Motivation) - Avg(Extrinsic Motivation)])						
Variable	Parameter Estimate	Standard Error	95% Confidence Limits		Z	Pr >  Z
Intercept	2.2991	0.1194	2.0651	2.5331	19.26	<.0001
Impulsivity	-0.1943	0.1649	-0.5175	0.1289	-1.18	0.2386
Trip Progress	0.0011	0.0007	-0.0002	0.0024	1.64	0.1012
Budget Focus	0.007	0.1192	-0.2266	0.2406	0.06	0.9531
Impulsivity * Trip Progress	-0.0022	0.001	-0.0042	-0.0003	-2.27	0.0234
Impulsivity * Budget Focus	-0.2283	0.1651	-0.552	0.0953	-1.38	0.1667
Trip Progress * Budget Focus	-0.0001	0.0007	-0.0014	0.0012	-0.12	0.902
Impulsivity * Trip Progress * Budget Focus	0.004	0.001	0.002	0.0059	3.93	<.0001
Category Hedonicity	0.566	0.0739	0.4212	0.7108	7.66	<.0001
Notes:						
i. All measured independent variables are mean-centered						
ii. All analyses conducted with SAS GenMod where participant is treated as a repeated effect						

## APPENDIX C: ESSAY 1 STIMULI

Studies 2 & 3 – Example of a list category in online shopping environment



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Studies 2 & 3 – Example of a non-list category in online shopping environment



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# APPENDIX D: ESSAY 1, STUDY 1 ROBUSTNESS TESTS

Study 1: In-Store Video Tracking Robustness Tests						
Relative Measure of Trip Progress						
(DV is Intrinsic Motivation = 1; Extrinsic Motivation = 0)						
Variable	Parameter Estimate	Standard Error	95% Confidence Limits		Z	Pr >  Z
Intercept	-0.9361	0.1378	-1.2061	-0.6661	-6.8	<.0001
Impulsivity	0.3202	0.1758	-0.0244	0.6649	1.82	0.0686
Trip Progress (from 0 to 100)	-0.2362	0.5357	-1.2862	0.8137	-0.44	0.6592
Budget	-0.4412	0.743	-1.8974	1.015	-0.59	0.5526
Impulsivity * Trip Progress	0.0047	0.0043	-0.0037	0.0132	1.09	0.2751
Impulsivity * Budget	-0.0063	0.0055	-0.0171	0.0046	-1.13	0.2568
Trip Progress * Budget	-0.0084	0.0131	-0.0341	0.0173	-0.64	0.5238
Impulsivity * Trip Progress * Budget	-0.0258	0.0185	-0.0619	0.0104	-1.4	0.1625
Category Hedonicity	0.317	0.1543	0.0145	0.6195	2.05	0.04
Budget Slack (Expected Total Spend - Expected Unplanned Spend)						
(DV is Intrinsic Motivation = 1; Extrinsic Motivation = 0)						
Variable	Parameter Estimate	Standard Error	95% Confidence Limits		Z	Pr >  Z
Intercept	-0.9425	0.1407	-1.2184	-0.6666	-6.7	<.0001
Impulsivity	0.3677	0.1728	0.029	0.7064	2.13	0.0334
Trip Progress	-0.0101	0.0168	-0.043	0.0228	-0.6	0.5474
Budget Slack	-0.0456	0.0248	-0.0943	0.003	-1.84	0.0661
Impulsivity * Trip Progress	0.0063	0.0052	-0.004	0.0165	1.2	0.2295
Impulsivity * Budget Slack	0.0031	0.0081	-0.0128	0.019	0.38	0.7003
Trip Progress * Budget Slack	-0.001	0.0008	-0.0026	0.0005	-1.28	0.2015
Impulsivity * Trip Progress * Budget Slack	-0.0009	0.001	-0.0029	0.0011	-0.84	0.3998
Category Hedonicity	0.3067	0.145	0.0224	0.5909	2.11	0.0345
# of Planned Categories						
(DV is Intrinsic Motivation = 1; Extrinsic Motivation = 0)						
Variable	Parameter Estimate	Standard Error	95% Confidence Limits		Z	Pr >  Z
Intercept	-0.9674	0.1488	-1.259	-0.6758	-6.5	<.0001
Impulsivity	0.4593	0.179	0.1085	0.81	2.57	0.0103
Trip Progress	-0.0294	0.0208	-0.0702	0.0115	-1.41	0.1588
# of Planned Categories	-0.0333	0.0288	-0.0897	0.0231	-1.16	0.2473
Impulsivity * Trip Progress	0.0751	0.0541	-0.0309	0.1811	1.39	0.1651
Impulsivity * # Plan Cats	0.0137	0.0525	-0.0892	0.1167	0.26	0.7941
Trip Progress * # Plan Cats	0.0018	0.0042	-0.0064	0.01	0.43	0.6701
Impulsivity * Trip Progress * # Plan Cats	-0.0162	0.0072	-0.0303	-0.0022	-2.27	0.0235
Category Hedonicity	0.28	0.1503	-0.0147	0.5747	1.86	0.0625

**APPENDIX E: ESSAY 2, STUDY 1**

<b>Study 1: End Cap Survey Summary Statistics</b>						
<b>Variable</b>	<b>N</b>	<b>Mean</b>	<b>Std Dev</b>	<b>Sum</b>	<b>Minimum</b>	<b>Maximum</b>
<b>Intrinsic Message</b>	270	0.20	0.40	53	0	1
<b>Extrinsic Message</b>	270	0.40	0.49	108	0	1
<b>Price Message</b>	270	0.60	0.49	163	0	1
<b>Price Cut</b>	270	0.64	0.48	173	0	1

<b>Study 1: End Cap Survey Correlation Table</b>				
	<b>Price Cut</b>	<b>Intrinsic Message</b>	<b>Extrinsic Message</b>	<b>Price Message</b>
<b>Price Cut</b>	1.00	-0.31	-0.26	0.25
<b>Intrinsic Message</b>	-0.31	1.00	-0.14	-0.25
<b>Extrinsic Message</b>	-0.26	-0.14	1.00	0.15
<b>Price Message</b>	0.25	-0.25	0.15	1.00



**APPENDIX F: ESSAY 2, STUDY 2**

Study 2 - Intrinsic Motivation Signage



Experience  
The Difference!

TODAY ONLY!

ASSORTED  
KILLER  
BROWNIES

**\$3.49**

w/Experience Card

This signage features a purple header with white text. The main text 'Experience The Difference!' is in a large, white, handwritten-style font. Below this, 'TODAY ONLY!' is in a smaller, white, sans-serif font. The product name 'ASSORTED KILLER BROWNIES' is in a bold, black, sans-serif font. The price '\$3.49' is in a large, bold, black, sans-serif font. At the bottom, 'w/Experience Card' is in a small, black, sans-serif font.

Study 2 – Extrinsic Motivation Signage



Ad Saver

TODAY ONLY!

ASSORTED  
KILLER  
BROWNIES

**\$3.49**

w/Experience Card

This signage features a red header with white text. The main text 'Ad Saver' is in a large, white, handwritten-style font. Below this, 'TODAY ONLY!' is in a smaller, white, sans-serif font. The product name 'ASSORTED KILLER BROWNIES' is in a bold, black, sans-serif font. The price '\$3.49' is in a large, bold, black, sans-serif font. At the bottom, 'w/Experience Card' is in a small, black, sans-serif font.

<b>Study 2: Intercept Summary Statistics</b>						
<b>Variable</b>	<b>N</b>	<b>Mean</b>	<b>Std Dev</b>	<b>Sum</b>	<b>Minimum</b>	<b>Maximum</b>
<b>Point-of-Purchase Message (1 = Intrinsic; 0 = None; -1 = Extrinsic)</b>	73	0.08	0.74	6	-1	1
<b>Product Category Hedonicity</b>	73	4.15	1.18	303.2	1.42	6.09
<b>Intrinsic Motivation (1=Yes; 0=No)</b>	73	0.49	0.50	36	0	1
<b>Extrinsic Motivation (1=Yes; 0=No)</b>	73	0.58	0.50	42	0	1
<b>Price Motivation (1=Yes; 0=No)</b>	73	0.07	0.25	5	0	1

<b>Study 2: Intercept Correlation Table</b>					
	<b>Intrinsic vs Extrinsic Message</b>	<b>Intrinsic Motivation</b>	<b>Extrinsic Motivation</b>	<b>Price Motivation</b>	<b>Category Hedonicity</b>
<b>Intrinsic vs Extrinsic Message</b>	1.00	0.34	-0.13	-0.40	-0.08
<b>Intrinsic Motivation</b>	0.34	1.00	-0.70	-0.16	0.15
<b>Extrinsic Motivation</b>	-0.13	-0.70	1.00	-0.10	-0.01
<b>Price Motivation</b>	-0.40	-0.16	-0.10	1.00	0.12
<b>Category Hedonicity</b>	-0.08	0.15	-0.01	0.12	1.00

## APPENDIX G: ESSAY 2, STUDY 3

Screen shot of bread category in shopping study:

Bread



(Category #/28)

Next Category

Study 3 point-of-purchase signage:



### Study 3 Signage Pretest Results:

Point-of-Purchase Message		N	Intrinsic Motivation Rating			Extrinsic Motivation Rating			Price Motivation Rating		
Type	Text		Mean	SD		Mean	SD		Mean	SD	
Intrinsic Message	<i>"Experience the Difference"</i>	64	3.54	1.33	a	3.67	1.44	a	3.30	1.49	b
Extrinsic Message	<i>"Best Seller"</i>	64	3.56	1.34	a	4.11	1.39	b	3.56	1.60	a
Price Message	<i>"Ad Saver"</i>	64	3.03	1.47	a	3.19	1.47	a	4.55	1.79	b

Note: a,b,c indicate significant difference between motivation rating at level of  $p < .05$

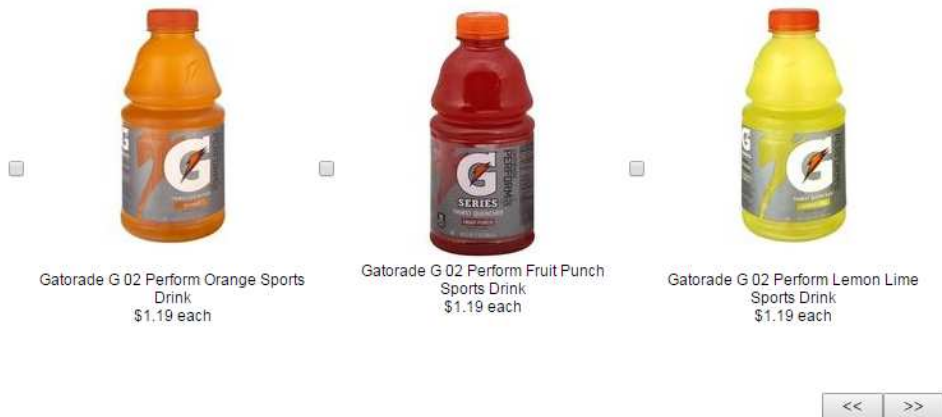
Study 3: Trip Purpose Summary Statistics						
Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
Purchase (1=Yes; 0=No)	1386	0.29	0.45	404	0	1
Trip Purpose (1=Fun; -1=Work)	1386	-0.02	1.00	-26	-1	1
Trip Progress [log(minutes)]	1386	4.75	0.92	6577	1.09861	7.19893
Category Hedonicity	1386	3.89	1.20	5394	1.78	5.96
Intrinsic Message	1386	0.11	0.31	153	0	1
Extrinsic Message	1386	0.11	0.31	154	0	1
Price Message	1386	0.11	0.31	149	0	1
No Message	1386	0.67	0.47	930	0	1

Study 3: Trip Purpose Correlation Table								
	Purchase	Fun vs Work	Trip Progress	Category Hedonicity	Intrinsic Message	Extrinsic Message	Price Message	No Message
Purchase	1.00	0.13	0.09	-0.01	-0.04	-0.01	0.02	0.02
Fun vs Work	0.13	1.00	0.03	-0.01	-0.06	0.01	0.03	0.01
Trip Progress	0.09	0.03	1.00	0.00	0.04	-0.04	-0.05	0.04
Category Hedonicity	-0.01	-0.01	0.00	1.00	-0.01	0.02	0.00	0.00
Intrinsic Message	-0.04	-0.06	0.04	-0.01	1.00	-0.12	-0.12	-0.50
Extrinsic Message	-0.01	0.01	-0.04	0.02	-0.12	1.00	-0.12	-0.50
Price Message	0.02	0.03	-0.05	0.00	-0.12	-0.12	1.00	-0.50
No Message	0.02	0.01	0.04	0.00	-0.50	-0.50	-0.50	1.00

Study 3: Model 1 Results						
Analysis Of GEE Parameter Estimates						
Empirical Standard Error Estimates						
Parameter	Estimate	Standard Error	95% Confidence Limits		Z	Pr >  Z
Intercept	-1.1601	0.2417	-1.6339	-0.6863	-4.8	<.0001
Trip Purpose	0.4649	0.2209	0.0319	0.8978	2.1	0.0353
Trip Progress	-0.0912	0.2327	-0.5472	0.3649	-0.39	0.6952
Trip Purpose * Trip Progress	-0.5249	0.245	-1.0051	-0.0446	-2.14	0.0322
Hedonicity	-0.0175	0.1797	-0.3697	0.3347	-0.1	0.9225

Study 3: Model 2 Results						
Analysis Of GEE Parameter Estimates						
Empirical Standard Error Estimates						
Parameter	Estimate	Standard Error	95% Confidence Limits		Z	Pr >  Z
Intercept	-0.9154	0.1735	-1.2555	-0.5754	-5.28	<.0001
Trip Purpose	0.2582	0.1624	-0.0601	0.5766	1.59	0.1119
Trip Progress	0.0838	0.0715	-0.0563	0.2238	1.17	0.2411
Trip Purpose * Trip Progress	0.0789	0.0682	-0.0548	0.2127	1.16	0.2472
Intrinsic vs. Not Intrinsic Contrast (INvsNOT)	-0.0198	0.208	-0.4275	0.3878	-0.1	0.924
Trip Purpose * INvsNOT	-0.0117	0.1847	-0.3738	0.3503	-0.06	0.9494
Trip Progress * INvsNOT	-0.0968	0.2227	-0.5333	0.3397	-0.43	0.6639
Trip Purpose * Trip Progress * INvsNOT	-0.5692	0.2162	-0.9929	-0.1455	-2.63	0.0085
Extrinsic vs. Price Contrast (EXvsPRICE)	-0.048	0.2268	-0.4926	0.3966	-0.21	0.8325
Trip Purpose * EXvsPRICE	0.004	0.2236	-0.4343	0.4423	0.02	0.9858
Trip Progress * EXvsPRICE	0.0332	0.2013	-0.3613	0.4277	0.16	0.869
Trip Progress * Trip Purpose * EXvsPRICE	0.0396	0.1952	-0.343	0.4223	0.2	0.8391
Intrinsic vs None Contrast (INvsNONE)	-0.1743	0.1849	-0.5367	0.1881	-0.94	0.3459
Trip Purpose * INvsNONE	0.2243	0.1651	-0.0994	0.5479	1.36	0.1744
Trip Progress * INvsNONE	-0.3333	0.1723	-0.671	0.0043	-1.93	0.053
Trip Purpose * Trip Progress * INvsNONE	-0.467	0.1805	-0.8207	-0.1134	-2.59	0.0097
Hedonicity	-0.0207	0.0387	-0.0966	0.0552	-0.53	0.5932

## APPENDIX H: ESSAY 2, STUDY 4



***Experience the Difference!***

***Try Something New!***

***Best Quality!***

***Forgotten Need!***

***Low Price!***

***Save Money!***



Point-of-Purchase Message		N	Intrinsic Motivation Rating			Extrinsic Motivation Rating			Price Motivation Rating		
Type	Text		Mean	St. Dev.		Mean	St. Dev.		Mean	St. Dev.	
Intrinsic Messages	"Experience the Difference"	77	4.86	1.53	a	3.30	1.52	b	3.22	1.49	b
	"Try Something New"	77	5.21	1.45	a	2.95	1.40	b	3.08	1.36	b
Extrinsic Messages	"Best Quality"	77	4.04	1.59	a	3.86	1.62	a,b	3.60	1.48	b
	"Forgotten Need"	77	3.51	1.61	a	3.83	1.68	a	3.00	1.35	b
Price Messages	"Low Price"	77	3.56	1.57	a	4.38	1.58	b	5.61	1.33	c
	"Save Money"	77	3.49	1.48	a	4.24	1.57	b	5.66	1.35	c

Note: a,b,c indicate significant difference between motivation rating at level of  $p < .05$  or less

Study 4: Summary Statistics						
Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
<b>Purchase (1=Yes; 0=No)</b>	552	0.20	0.40	111	0	1
<b>Buying Impulsivity</b>	552	2.37	0.90	1310	1.11	4.89
<b>Trip Progress [log(minutes)]</b>	552	4.47	1.12	2468	0	5.95
<b>Category Hedonicity</b>	552	4.25	1.25	2344	1.78	5.96
<b>Intrinsic Message</b>	552	0.19	0.39	105	0	1
<b>Extrinsic Message</b>	552	0.21	0.41	117	0	1
<b>Price Message</b>	552	0.19	0.40	107	0	1
<b>No Message</b>	552	0.40	0.49	223	0	1

Study 4: Correlation Table								
	Purchase	Impulsivity	Trip Progress	Hedonicity	Intrinsic Message	Extrinsic Message	Price Message	No Message
<b>Purchase</b>	1.00	0.12	0.00	0.02	0.01	0.04	0.03	-0.06
<b>Impulsivity</b>	0.12	1.00	0.08	0.00	0.11	-0.11	0.09	-0.07
<b>Trip Progress</b>	0.00	0.08	1.00	0.05	-0.01	-0.01	0.08	-0.05
<b>Hedonicity</b>	0.02	0.00	0.05	1.00	-0.02	-0.05	0.02	0.03
<b>Intrinsic Message</b>	0.01	0.11	-0.01	-0.02	1.00	-0.25	-0.24	-0.40
<b>Extrinsic Message</b>	0.04	-0.11	-0.01	-0.05	-0.25	1.00	-0.25	-0.43
<b>Price Message</b>	0.03	0.09	0.08	0.02	-0.24	-0.25	1.00	-0.40
<b>No Message</b>	-0.06	-0.07	-0.05	0.03	-0.40	-0.43	-0.40	1.00

Study 4: Model 1 Results						
Analysis Of GEE Parameter Estimates						
Empirical Standard Error Estimates						
Parameter	Estimate	Standard Error	95% Confidence Limits		Z	Pr >  Z
Intercept	-1.2199	0.3745	-1.9539	-0.4858	-3.26	0.0011
Impulsivity	0.4883	0.3729	-0.2426	1.2192	1.31	0.1904
Trip Progress	0.3522	0.1725	0.0141	0.6903	2.04	0.0412
Impulsivity * Trip Progress	-1.2019	0.3704	-1.9279	-0.4759	-3.24	0.0012
Hedonicity	-0.1439	0.1204	-0.3798	0.092	-1.2	0.2319

Study 4: Model 2 Results						
Analysis Of GEE Parameter Estimates						
Empirical Standard Error Estimates						
Parameter	Estimate	Standard Error	95% Confidence Limits		Z	Pr >  Z
<b>Intercept</b>	-1.0669	0.237	-1.5314	-0.6025	-4.5	<.0001
<b>Impulsivity</b>	0.3375	0.2275	-0.1084	0.7834	1.48	0.1379
<b>Trip Progress</b>	0.0664	0.1032	-0.1359	0.2687	0.64	0.5199
<b>Impulsivity * Trip Progress</b>	-0.2838	0.1148	-0.5089	-0.0587	-2.47	0.0135
<b>Intrinsic vs. Not Intrinsic Contrast (INvsNOT)</b>	-0.3879	0.264	-0.9053	0.1296	-1.47	0.1418
<b>Impulsivity * INvsNOT</b>	0.2119	0.2029	-0.1859	0.6096	1.04	0.2965
<b>Trip Progress * INvsNOT</b>	0.159	0.2128	-0.2581	0.5761	0.75	0.4549
<b>Impulsivity * Trip Progress * INvsNOT</b>	-1.3525	0.362	-2.0621	-0.6429	-3.74	0.0002
<b>Extrinsic vs. Price Contrast (EXvsPRICE)</b>	0.4575	0.2205	0.0253	0.8897	2.07	0.038
<b>Impulsivity * EXvsPRICE</b>	0.7407	0.3391	0.0761	1.4053	2.18	0.0289
<b>Trip Progress * EXvsPRICE</b>	-0.0408	0.2452	-0.5213	0.4397	-0.17	0.8678
<b>Impulsivity * Trip Purpose * EXvsPRICE</b>	-0.1259	0.1831	-0.4847	0.233	-0.69	0.4918
<b>Intrinsic vs None Contrast (INvsNONE)</b>	-0.1534	0.242	-0.6277	0.3208	-0.63	0.526
<b>Impulsivity * INvsNONE</b>	0.2908	0.164	-0.0307	0.6123	1.77	0.0763
<b>Trip Progress * INvsNONE</b>	0.438	0.273	-0.097	0.973	1.6	0.1086
<b>Impulsivity * Trip Progress * INvsNONE</b>	-0.8328	0.3746	-1.567	-0.0987	-2.22	0.0262
<b>Hedonicity</b>	0.0359	0.0594	-0.0805	0.1523	0.6	0.5457

## References

- Ailawadi, Kusum L., J.P. Beauchamp, Naveen Donthu, Dunish K. Gauri, and Venkatesh Shankar (2009), "Communication and Promotion Decisions in Retailing: A Review and Directions for Future Research," *Journal of Retailing*, (1), 42-55.
- Amos, Clinton, Gary R. Holmes, and William C. Keneson (2014), "A Meta-Analysis of Consumer Impulse Buying," *Journal of Retailing and Consumer Services*, 21(2), 86-97.
- Arnold, Mark J. and Kristy E. Reynolds (2003), "Hedonic Shopping Motivations," *Journal of Retailing* 79, 77-95.
- Babin, Barry J., William R. Darden, and Mitch Griffin (1994), "Work and/or Fun: Measuring Hedonic and Utilitarian Shopping Value," *Journal of Consumer Research*, 20(4), 644-56.
- Baik, Alicia, Rajkumar Venkatesan, and Paul Farris (2014), "Mobile Shopper Marketing: Assessing the Impact of Mobile Technology on Consumer Path to Purchase," *Shopper Marketing and the Role of In-Store Marketing, Review of Marketing Research, Volume 11*, Emerald Group Publishing Limited, 1-25.
- Beatty, Sharon E. and M. Elizabeth Ferrell (1998), "Impulse Buying: Modeling Its Precursors," *Journal of Retailing*, 74(2), 169-91.
- Bellenger, Danny N., Dan H. Robertson, and Elizabeth C. Hirschman (1978), "Impulse Buying Varies by Product," *Journal of Advertising Research*, 15-8.
- Bell, David R., Jeongwen Chiang, and Venkata Padmanabhan (1999), "The Decomposition of Promotional Response: An Empirical Generalization," *Marketing Science*, 18(4), 504-26.
- Bell, David R., Daniel Corsten, and George Knox (2011), "From Point of Purchase to Path to Purchase: How Preshopping Factors Drive Unplanned Buying," *Journal of Marketing*, 75(1), 31-45.
- Block, Lauren G. and Vicki G. Morwitz (1999), "Shopping Lists as an External Memory Aid for Grocery Shopping: Influences on List Writing and List Fulfillment," *Journal of Consumer Psychology*, 8(4), 343-75.
- Bucklin, Randolph E. and James M. Lattin (1991), "A Two-State Model of Purchase Incidence and Brand Choice," *Marketing Science*, 10(1), 24-39.
- Burke, Raymond R. (2009), "Behavioral Effects of Digital Signage," *Journal of Advertising Research*, 49(2), 180-5.
- Chandon, Pierre, Brian Wansink, and Gilles Laurent (2000), "A Benefit Congruency Framework of Sales Promotion Effectiveness," *Journal of Marketing*, 64(4), 65-81.

- Childers, Terry L., Christopher L. Carr, Joann Peck, and Stephen Carson (2001), "Hedonic and Utilitarian Motivations for Online Retail Shopping Behavior," *Journal of Retailing*, 77, 511-35.
- Choi, Jinhee and Ayelet Fishbach (2011), "Choice as an End Versus a Means," *Journal of Marketing Research*, 48(3), 544-54.
- Cobb, Cathy J. and Wayne D. Hoyer (1986), "Planned Versus Impulse Purchase Behavior," *Journal of Retailing*, 62(4) 384-409.
- Dahl, Darren, Eileen Fischer, Gita Johar, and Vicki Morwitz (2014), "From the Editors-Elect: Meaningful Consumer Research," *Journal of Consumer Research*, Editorial, June.
- Danaher, Peter J., Michael S. Smith, Kulan Ranasinghe, and Tracey S. Danaher (2015), "Where, When and How Long: Factors that Influence the Redemption of Mobile Phone Coupons," *Journal of Marketing Research*, forthcoming.
- Deci, Edward L. and Richard M. Ryan (1985), *Intrinsic Motivation and Self-Determination in Human Behavior*, Springer Science & Business Media.
- Dhar, Ravi and Itamar Simonson (1999), "Making Complementary Choices in Consumption Episodes: Highlighting versus Balancing," *Journal of Marketing Research*, 36(1), 29-44.
- Dhar, Ravi, Joel Huber, and Uzma Khan (2007), "The Shopping Momentum Effect," *Journal of Marketing Research*, 44(3), 370-8.
- Dhar, Ravi and Klaus Wertenbroch (2000), "Consumer Choice Between Hedonic and Utilitarian Goods," *Journal of Marketing Research*, 37(1), 60-71.
- Dichter, Ernest (1964), *Handbook of Consumer Motivations*.
- Dreze, Xavier, Stephen J. Hoch, and Mary E. Purk (1995), "Shelf Management and Space Elasticity," *Journal of Retailing*, 70(4), 301-26.
- Drolet, Aimee (2002), "Inherent Rule Variability in Consumer Choice: Changing Rules for Change's Sake," *Journal of Consumer Research*, 29, 293-305.
- Edwards, Kari (1990), "The Interplay of Affect and Cognition in Attitude Formation and Change," *Journal of Personality & Social Psychology*, 59(2), 202-16.
- Erdem, Tulin, Michael P. Kean, and Baohong Sun (2008), "A Dynamic Model of Brand Choice When Price and Advertising Signal Product Quality," *Marketing Science*, 27(6), 1111-25.
- Fishbach, Ayelet and Ravi Dhar (2005), "Goals as Excuses or Guides: The Liberating Effect of Perceived Goal Progress on Choice," *Journal of Consumer Research*, 32(3), 370-7.

- Gilbride, Timothy, J. Jeffrey Inman, and Karen M. Stilley (2015), "The Role of Within-Trip Dynamics in Unplanned Versus Planned Purchase Behavior," *Journal of Marketing*, 79(3), 57-73.
- Goodman, Joseph K., Susan M. Broniarczyk, Jill Griffin, and Leigh McAlister (2013), "Help or Hinder? When Recommendation Signage Expands Consideration Sets and Heightens Decision Difficulty," *Journal of Consumer Psychology*, 23(2), 165-74.
- Grewal, Dhruv, Anne L. Roggeveen, and Jens Nordfält (2014), *Shopper Marketing and the Role of In-Store Marketing*. Bingley: Emerald.
- Grewal, Dhruv, Kusum L. Ailawadi, Dinesh Gauri, Kevin Hall, Praveen Kopalle, and Jane R. Robertson (2011), "Innovations in Retail Pricing and Promotions," *Journal of Retailing*, 87, S43-52.
- Guevarra, Darwin A. and Ryan T. Howell (2015), "To Have In Order To Do: Exploring the Effects of Consuming Experiential Products on Well-Being," *Journal of Consumer Psychology*, 25(1), 28-41.
- Hamilton, Ryan and Alexander Chernev (2013), "Low Prices Are Just the Beginning: Price Image in Retail Management," *Journal of Marketing*, 77(November), 1-20.
- Heilman, Carrie M., Kent Nakamoto, and Ambar G. Rao (2002), "Pleasant Surprises: Consumer Response to Unexpected In-Store Coupons," *Journal of Marketing Research*, 39(2), 242-52.
- Hoch, Stephen J. and George F. Loewenstein (1991), "Time-Inconsistent Preferences and Consumer Self-Control," *Journal of Consumer Research*, 17(4), 492-507.
- Holbrook, Morris B. and Elizabeth C. Hirschman (1982), "The Experiential Aspects of Consumption: Consumer Fantasies, Feelings, and Fun," *Journal of Consumer Research*, 9(2), 132-40.
- Hoyer, Wayne D. (1984), "An Examination of Consumer Decision Making for a Common Repeat Purchase Product," *Journal of Consumer Research*, 11(3), 822-9.
- Hoyer, Wayne D., Deborah J. MacInnis, and Rik Pieters (2013), *Consumer Behavior*, South-Western College Pub.
- Hui, Sam K., Eric T. Bradlow, and Peter S. Fader (2009), "Testing Behavioral Hypotheses Using an Integrated Model of Grocery Store Shopping Path and Purchase Behavior," *Journal of Consumer Research*, 36(3), 478-93.
- Hui, Sam K., J. Jeffrey Inman, Yanliu Huang, and Jacob Suher (2013), "The Effect of In-Store Travel Distance on Unplanned Spending: Applications to Mobile Promotion Strategies," *Journal of Marketing*, 77(2), 1-16.

- Hui, Sam K., Yanliu Huang, Jacob Suher, and J. Jeffrey Inman (2013), "Deconstructing the "First Moment of Truth": Understanding Unplanned Consideration and Purchase Conversion Using In-Store Video Tracking," *Journal of Marketing Research*, 50(4), 445-62.
- Inman, J. Jeffrey (2012), "ACR Presidential Address," ACR NA Conference, Vancouver, CA.
- Inman, J. Jeffrey, Leigh McAlister, and Wayne D. Hoyer (1990), "Promotion Signal: Proxy for a price Cut?" *Journal of Consumer Research*, 17(1), 74-81.
- Inman, J. Jeffrey, Russell S. Winer, and Rosellina Ferraro (2009), "The Interplay Among Category Characteristics, Customer Characteristics, and Customer Activities on In-Store Decision Making," *Journal of Marketing*, 73(5), 19-29.
- Inzlicht, Michael, Brandon J. Schmeichel, and C. Neil Macrae (2014), "Why Self-Control Seems (But May Not Be) Limited," *Trends in Cognitive Sciences*, 18(3), 127-33.
- Kahn, Barbara E. and Leigh McAlister (1997), *Grocery Revolution*, Addison-Wesley.
- Kaltcheva, Velitchka D. and Barton A. Weitz (2006), "When Should a Retailer Create an Exciting Store Environment?" *Journal of Marketing*, 70(1), 107-18.
- Khan, Uzma and Ravi Dhar (2006), "Licensing Effect in Consumer Choice," *Journal of Marketing Research*, 43(2), 259-266.
- Kivetz, Ran and Itamar Simonson (2002), "Earning the Right to Indulge: Effort as a Determinant of Customer Preferences Toward Frequency Program Rewards," *Journal of Marketing Research*, 39(2), 155-70.
- Kollat, David T. and Ronald P. Willett (1967), "Customer Impulse Purchasing Behavior," *Journal of Marketing Research*, 4(February), 21-31.
- Kool, Wouter and Matthew Botvinick (2014), "A Labor/Leisure Tradeoff in Cognitive Control," *Journal of Experimental Psychology: General*, 143(1), 131-41.
- Kumar, V., Nita Umashankar, and Insu Park (2014), "Tracing the Evolution & Projecting the Future of In-Store Marketing," in *Shopper Marketing and the Role of In-Store Marketing*, Dhruv Grewal, Anne L. Roggeveen, and Jens Nordfält, eds. Bingley: Emerald Group Publishing Limited.
- Laran, Juliano and Chris Janiszewski (2011), "Work or Fun? How Task Construal and Completion Influence Regulatory Behavior," *Journal of Consumer Research*, 37(6), 967-83.
- Lee, Angela Y. and E. Tory Higgins (2009), "The Persuasive Power of Regulatory Fit," *Social Psychology of Consumer Behavior*, 319-33.
- Lee, Leonard and Dan Ariely (2006), "Shopping Goals, Goal Concreteness, and Conditional Promotions," *Journal of Consumer Research*, 33(1), 60-70.

- Lee, Leonard and Claire I. Tsai (2014), "How Price Promotions Influence Postpurchase Consumption Experiences Over Time," *Journal of Consumer Research*, 40(5), 943-59.
- Lucas, Jim (2012), "Shopper Marketing, the Discipline, the Approach," in *Shopper Marketing: How to Increase Purchase Decisions at the Point of Sale*, Markus Ståhlberg and Ville Maila, eds. London: Kogan Page.
- Luo, Xueming, Michelle Andrews, Zheng Fang, and Chee Wei Phang (2014), "Mobile Targeting," *Management Science*, 60(7), 1738-56.
- Progressive Grocer (2010), *Marketing Guidebook*.
- Marketing Science Institute (MSI) (2014), 2014-2016 Research Priorities.
- Mela, Carl F., Sunil Gupta, and Donald R. Lehmann (1997), "The Long-Term Impact of Promotion and Advertising on Consumer Brand Choice," *Journal of Marketing Research*, 34(2), 248-61.
- Moore, Sarah G. (2015), "Attitude Predictability and Helpfulness in Online Reviews: The Role of Explained Actions and Reactions," *Journal of Consumer Research*, 42, 30-44.
- Muraven, Mark and Roy F. Baumeister (2000), "Self-Regulation and Depletion of Limited Resources: Does Self-Control Resemble a Muscle?" *Psychological Bulletin*, 126(2), 247-59.
- Neslin, Scott A. (2002), *Sales Promotion*, Cambridge, Marketing Science Institute.
- Nikolova, Hristina Dzhogleva and J. Jeffrey Inman (2015), "Healthy Choice: The Effect of Simplified Point-of-Sale Nutritional Information on Consumer Food Choice Behavior," *Journal of Marketing Research*, 52(December), 817-35.
- Nisbett, Richard E. and Timothy DeCamp Wilson (1977), "Telling More Than We Can Know: Verbal Reports on Mental Processes," *Psychological Review*, 84(3), 231-59.
- Nordfält, Jens (2009), "Unplanned Grocery Purchases: The Influence of the Shopping-Trip Type Revisited," *Journal of Consumer Behavior*, 8, 1-13.
- Park, C. Whan, Easwar S. Iyer, and Daniel C. Smith (1989), "The Effects of Situational Factors on In-Store Grocery Shopping Behavior: The Role of Store Environment and Time Available for Shopping," *Journal of Consumer Research*, 15(4), 422-33.
- Peterson, Hayley (2015), "Whole Foods is about to get a lot cheaper," *Business Insider*, <http://www.businessinsider.com/whole-foods-is-about-to-get-a-lot-cheaper-2015-11>.
- Pham, Michel Tuan (2013), "The Seven Sins of Consumer Psychology," *Journal of Consumer Psychology*.



- Point of Purchase Advertising International (2012), "2012 Shopper Engagement Study."
- Ramanathan, Suresh and Patti Williams (2007), "Immediate and Delayed Emotional Consequences of Indulgence: The Moderating Influence of Personality Type on Mixed Emotions," *Journal of Consumer Research*, 34(2), 212-23.
- Roggeveen, Anne L., Jens Nordfalt, and Dhruv Grewal (2015), "Do Digital Displays Enhance Sales? Role of Retail Format and Message Content," *Journal of Retailing*, 92(1), 122-31.
- Rook, Dennis W. (1987), "The Buying Impulse," *Journal of Consumer Research*, 14(2), 189-99.
- Rook, Dennis W. and Meryl P. Gardner (1993), "In the Mood: Impulse Buying's Affective Antecedents," *Research in Consumer Behavior*, 6(7), 1-28.
- Rook, Dennis W. and Robert J. Fisher (1995), "Normative Influences on Impulsive Buying Behavior," *Journal of Consumer Research*, 22(3), 305-13.
- Russo, J. Edward and France Leclerc (1994), "An Eye-Fixation Analysis of Choice Processes for Consumer Nondurables," *Journal of Consumer Research*, 21(2), 274-90.
- Ryan, Richard M. and Edward L. Deci (2000), "Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions," *Contemporary Educational Psychology*, 25, 54-67.
- Shankar, Venkatesh, J. Jeffrey Inman, Murali Mantrala, Eileen Kelley, and Ross Rizley (2011), "Innovations in Shopper Marketing: Current Insights and Future Research Issues," *Journal of Retailing*, 87, 29-42.
- Stern, Hawkins (1962), "The Significance of Impulse Buying Today," *Journal of Marketing*, 26(2), 59-62.
- Stilley, Karen M., J. Jeffrey Inman, and Kirk L. Wakefield (2010a), "Planning to Make Unplanned Purchases? The Role of In-Store Slack in Budget Deviation," *Journal of Consumer Research*, 37(2), 264-78.
- Stilley, Karen M., J. Jeffrey Inman, and Kirk L. Wakefield (2010b), "Spending on the Fly: Mental Budgets, Promotions, and Spending Behavior," *Journal of Marketing*, 74 (May), 34-47.
- Suher, Jacob and Herb Sorensen (2010), "The Power of Atlas: Why In-Store Shopping Behavior Matters," *Journal of Advertising Research*, 50(1), 21-9.
- Suher, Jacob and Wayne D. Hoyer (2016), "In-Store Motivation Balancing: The Dynamics of Consumers' Reasons for Unplanned Purchases," *working paper*.
- Underhill, Paco (2009), *Why We Buy: The Science of Shopping – updated and revised for the Internet, the global consumer, and beyond*, Simon and Schuster.

- Van Heerde, Harald J., Peter S. H. Leeflang, and Dick R. Wittink (2004), "Decomposing the Sales Promotion Bump with Store Data," *Marketing Science*, 23(3), 317-34.
- Van Ittersum, Koert, Joost M.E. Pennings, and Brian Wansink (2010), "Trying Harder and Doing Worse: How Grocery Shoppers Track In-Store Spending," *Journal of Marketing*, 74, 90-104.
- Van Ittersum, Koert, Brian Wansink, Joost M.E. Pennings, and Daniel Sheehan (2013), "Smart Shopping Carts: How Real-Time Feedback Influences Spending," *Journal of Marketing*, 77, 21-36.
- Van Trijp, Hans C. M., Wayne D. Hoyer, and J. Jeffrey Inman (1996), "Why Switch? Product Category Level Explanations for True Variety-Seeking Behavior," *Journal of Marketing Research*, 33(3), 281-92.
- Verhoef, Peter C., Katherine N. Lemon, A. Parasuraman, Anne Roggeveen, Michael Tsiros, and Leonard A. Schlesinger (2009), "Customer Experience Creation: Determinants, Dynamics and Management Strategies," *Journal of Retailing*, 85(1), 31-41.
- Vohs, Kathleen D. and Ronald J. Faber (2007), "Spent Resources: Self-Regulatory Resource Availability Affects Impulse Buying," *Journal of Consumer Research*, 33(4), 537-47.
- Wakefield, Kirk L. and J. Jeffrey Inman (2003), "Situational Price Sensitivity: The Role of Consumption Occasion, Social Context, and Income," *Journal of Retailing*, 79(4), 199-212.
- Woolley, Kaitlin and Ayelet Fishbach (2016), "For the Fun of It: Harnessing Immediate Rewards to Increase Persistence in Long-Term Goals," *Journal of Consumer Research*, in press.
- Zhang, Jie (2006), "An Integrated Choice Model Incorporating Alternative Mechanisms for Consumers' Reactions to In-Store Display and Feature Advertising," *Marketing Science*, 25(3), 278-90.
- Zhang, Yinlong, Karen Page Winterich, and Vikas Mittal (2010), "Power Distance Belief and Impulse Buying," *Journal of Marketing Research*, 47(October), 945-54.